

Prepared for:
National Marine Fisheries Service
National Oceanic and Atmospheric Administration



Pursuant to:
National Environmental
Policy Act Section 102(2)(C)

Environmental Assessment and Regulatory Impact Review for the Definition of the Zero Mortality Rate Goal of the Marine Mammal Protection Act

Draft

April 1, 2004

Abstract

This environmental assessment identifies and evaluates the potential effects of several alternatives designed to define the Zero Mortality Rate Goal (ZMRG), a requirement of Section 118 of the Marine Mammal Protection Act (MMPA). The objective of the ZMRG is to reduce the mortality and serious injury of marine mammals incidental to commercial fisheries “to insignificant levels approaching a zero mortality and serious injury rate.” Currently there is no regulatory definition for the ZMRG yet it is the long-term target of take reduction plans as well as an overall mandate for marine mammal bycatch reduction in the MMPA. The preferred alternative proposes to use ten percent of the potential biological removal level as the target level in defining the ZMRG. By defining the ZMRG, take reduction teams would have a clear, specific target for the long-term goal of the take reduction plans. No significant impacts are anticipated as a result of the proposed action.

Please contact the following person with comments and questions:

Tom Eagle
Office of Protected Resources
National Marine Fisheries Service
Silver Spring, MD 301-713-2322, ext. 105
Tom.Eagle@noaa.gov

EXECUTIVE SUMMARY

In 1994, Marine Mammal Protection Act (MMPA) amendments created Section 118, which includes provisions concerning incidental mortality and serious injury of marine mammals in commercial fisheries. One objective of these provisions, as described in Section 118(b), is to achieve the zero mortality rate goal (ZMRG). This environmental assessment (EA) focuses on the first provision (the target) of Section 118(b), which is *to reduce the mortality and serious injury of marine mammals incidental to commercial fisheries “to insignificant levels approaching a zero mortality and serious injury rate”* by April 30, 2001 (although the deadline has passed, the requirement must still be met). Other Section 118(b) provisions of the ZMRG include: fisheries that maintain the target levels of incidental mortality and serious injury do not have to further reduce incidental mortality and serious injury rates; the Secretary shall review progress of all commercial fisheries toward achieving the target and submit a report to Congress; and if, after review, a fishery does not achieve the target, NMFS will take appropriate action as provided in Section 118(f), which describes the take reduction process including its long-term goal of achieving ZMRG.

There is currently no statutory or regulatory definition of what levels would be “insignificant levels approaching a zero mortality and serious injury rate.” To determine if the goal of Section 118 is being met with respect to the ZMRG on a fishery-specific basis, it is necessary for the National Marine Fisheries Service (NMFS) to define ZMRG so that it can be quantified and individualized.

To determine progress of commercial fisheries, by fishery, toward the ZMRG as provided by MMPA Sections 118(b) and (f), NMFS proposes to determine a target level of incidental mortality and serious injury for each marine mammal stock affected by the commercial fishery under consideration when deciding whether that fishery has attained ZMRG. In this EA, the agency identifies this target level as the insignificance threshold (T_{ins}), which indicates the maximum amount of incidental mortality and serious injury that can be considered to be insignificant levels approaching a zero rate. If the amount of incidental mortality and serious injury is less than or equal to T_{ins} for a particular stock, the level of incidental mortality and serious injury would be considered insignificant and approaching a zero rate for that stock, and that fishery would be considered as having met the ZMRG.

The No Action Alternative would maintain status quo, thus not presenting any regulatory definition of ZMRG. Although there is no regulatory definition of ZMRG, NMFS has been using the criterion of ten percent of a stock’s potential biological removal level (PBR) in stock assessment reports (SARs). However, ZMRG would continue to have no regulatory definition; thus, it would be unclear how ZMRG applies in the implementation of MMPA Section 118.

The action alternatives differ only in the way T_{ins} is calculated. Because T_{ins} is calculated differently under each action alternative, the number and types of fisheries resulting in marine mammal incidental mortality and serious injury greater than the T_{ins} differ under

47 each alternative. NMFS has identified Alternative 2 as the preferred alternative for the
48 proposed action. Alternative 2 defines T_{ins} as ten percent of the stock's PBR, which is the
49 informal interpretation of ZMRG used today and under the No Action Alternative.
50 Alternative 2 would use varying recovery factors, and thus have different recovery
51 delays, for stocks depending on their status. Alternative 3 defines T_{ins} as the value that
52 would not cause more than a ten percent delay in recovery of the marine mammal stock.
53 Alternative 3 is not consistent with Section 118 of the MMPA because it would result in
54 an equivalent T_{ins} and PBR for endangered species; however, it is analyzed throughout
55 the EA for purposes of comparison. Alternative 4 defines T_{ins} as 0.1 percent of the
56 minimum population estimate (N_{min}) for cetaceans or 0.3 percent of N_{min} for pinnipeds.
57 Under Alternatives 3 and 4, T_{ins} would be calculated differently for cetaceans and
58 pinnipeds with T_{ins} being slightly higher for pinnipeds under both alternatives.

59
60 Alternative 2 would be the most protective of endangered stocks, and Alternative 4 would
61 be the most protective of healthy, robust stocks. Alternatives 2 and 4 would be equally
62 protective of threatened, depleted, or unknown stocks while Alternative 3 would be the
63 least protective of such stocks.

64
65 Alternative 2 would protect the largest number of marine mammal stocks and would
66 result in the largest number of commercial fisheries that would need to reduce incidental
67 mortality and serious injury to achieve ZMRG. Alternative 3 would protect the fewest
68 stocks, and Alternative 4 would protect a moderate number of stocks. Therefore,
69 Alternative 3 would require reduction in incidental mortality and serious injury from the
70 fewest commercial fisheries while Alternative 4 would require reduction in incidental
71 mortality and serious injury from a moderate number of commercial fisheries. None of
72 the alternatives would be likely to adversely affect essential fish habitat or species listed
73 by the Endangered Species Act.

74
75 The No Action Alternative would not impact fishery socioeconomics. Because
76 Alternative 2 would affect the greatest number of fisheries, it would have the largest
77 number of potential, minor, direct and indirect, negative impacts on fishery
78 socioeconomics. Alternative 3 would have the fewest of such impacts, and Alternative 4
79 would have a moderate amount of such impacts. Under all action alternatives, impacts on
80 fishermen are expected to be minor because they are represented on the TRT, and the
81 TRT would take into consideration economic feasibility of the entire fishery when
82 designing a TRP pursuant to MMPA Section 118(f). Generally, the opportunity costs are
83 lost fishing time and potential income while the TRT meets. Opportunity costs to all
84 fishery participants could result from potential TRP measures, such as time and area
85 closures, that would reduce their fishing effort. Direct costs to all members of the fishery
86 would be based on potential TRP measures. In addition to time and area restrictions as
87 mentioned above, such measures could include gear modification or replacement, which
88 would likely result in direct costs to the fishermen as they would have to alter their gear
89 or purchase new types of gear.

90

91 The preferred alternative, Alternative 2, would not result in any significant, adverse
92 impacts on the human environment, including protected marine populations, commercial
93 fisheries, fishermen, or other regulatory programs.

1 **Environmental Assessment and Regulatory Impact Review**
2 **for the Definition of the Zero Mortality Rate Goal of the**
3 **Marine Mammal Protection Act**

4
5 **Contents**

6	Chapter	Page
7		
8		
9	Acronyms and Abbreviations	vi
10		
11	Chapter 1 – Purpose and Need	
12		
13	1.1 Introduction.....	1-1
14	1.2 ZMRG – Legislative History	1-2
15	1.3 ZMRG – Target Level	1-3
16	1.4 MMPA Elements Related to ZMRG.....	1-4
17	1.4.1 Potential Biological Removal Level	1-4
18	1.4.2 Fishery Classification.....	1-5
19	1.4.3 Take Reduction Plans	1-6
20	1.5 ZMRG – Regulatory Status	1-7
21	1.6 Summary of Purpose and Need.....	1-7
22	1.7 The NEPA Process.....	1-8
23	1.8 Other Environmental Requirements Considered	1-10
24	1.8.1 Endangered Species Act	1-10
25	1.8.2 Magnuson-Stevens Fishery Conservation and Management Act	1-10
26	1.8.3 Executive Order 12866: Regulatory Planning and Review	1-10
27	1.8.4 Regulatory Flexibility Act	1-11
28		
29	Chapter 2 – Alternatives	
30		
31	2.1 Alternative 1: No Action Alternative.....	2-1
32	2.2 Action Alternatives	2-2
33	2.2.1 Alternative 2: Preferred Alternative.....	2-4
34	2.2.2 Alternative 3.....	2-4
35	2.2.3 Alternative 4.....	2-4
36	2.3 Alternatives Considered but Dismissed from Further Analysis	2-5
37	2.3.1 Alternative 5.....	2-5
38	2.3.2 Alternative 6.....	2-5
39	2.3.3 Alternative 7.....	2-6
40	2.3.4 Alternative 8.....	2-7
41	2.3.5 Alternative 9.....	2-7
42		
43		

43	Chapter 3 – Existing Conditions	
44		
45	3.1 Status of Protected Marine Populations	3-1
46	3.1.1 Marine Mammals	3-1
47	3.1.2 Sea Turtles	3-2
48	3.1.2.1 Green Turtle	3-3
49	3.1.2.2 Hawksbill Turtle	3-3
50	3.1.2.3 Kemp’s Ridley Turtle	3-3
51	3.1.2.4 Leatherback Turtle	3-4
52	3.1.2.5 Loggerhead Turtle.....	3-4
53	3.1.2.6 Olive Ridley Turtle	3-4
54	3.1.3 Sea Birds	3-5
55	3.1.4 Anadromous and Marine Fishes	3-5
56	3.2 Description of Active US Commercial Fisheries.....	3-6
57	3.3 TRTs and TRPs.....	3-7
58	3.3.1 Pacific Offshore Cetacean TRT	3-7
59	3.3.2 Mid-Atlantic Harbor Porpoise TRT.....	3-8
60	3.3.3 Gulf of Maine Harbor Porpoise TRT	3-8
61	3.3.4 Atlantic Large Whale TRT	3-8
62	3.3.5 Bottlenose Dolphin TRT.....	3-9
63		
64	Chapter 4 – Environmental Impacts	
65		
66	4.1 Impacts on Protected Marine Populations	4-1
67	4.1.1 Sea Turtles, Sea Birds, and Salmonids and Other Protected Fishes	4-1
68	4.1.2 Marine Mammals	4-2
69	4.1.2.1 Alternative 1: No Action Alternative.....	4-3
70	4.1.2.2 Alternative 2: Preferred Alternative.....	4-4
71	4.1.2.3 Alternative 3.....	4-9
72	4.1.2.4 Alternative 4.....	4-11
73	4.2 Impacts on US Commercial Fisheries.....	4-15
74	4.2.1 Alternative 1: No Action Alternative.....	4-19
75	4.2.2 Alternative 2: Preferred Alternative.....	4-20
76	4.2.2.1 Alaska Region.....	4-20
77	4.2.2.2 Atlantic Region	4-20
78	4.2.2.3 Pacific Region.....	4-22
79	4.2.3 Alternative 3.....	4-23
80	4.2.3.1 Alaska Region.....	4-23
81	4.2.3.2 Atlantic Region	4-24
82	4.2.3.3 Pacific Region.....	4-25
83	4.2.4 Alternative 4.....	4-25
84	4.2.4.1 Alaska Region.....	4-26
85	4.2.4.2 Atlantic Region	4-26
86	4.2.4.3 Pacific Region.....	4-27
87	4.3 Regulatory Impacts	4-28
88	4.3.1 Alternative 1: No Action Alternative.....	4-29

89	4.3.1.1 MMPA	4-29
90	4.3.1.2 Magnuson-Stevens Act	4-29
91	4.3.2 Alternative 2: Preferred Alternative.....	4-29
92	4.3.2.1 MMPA	4-29
93	4.3.2.2 Magnuson-Stevens Act	4-29
94	4.3.3 Alternative 3.....	4-30
95	4.3.3.1 MMPA	4-30
96	4.3.3.2 Magnuson-Stevens Act	4-30
97	4.3.4 Alternative 4.....	4-31
98	4.3.4.1 MMPA	4-31
99	4.3.4.2 Magnuson-Stevens Act	4-31
100	4.4 Cumulative Impacts	4-32
101	4.5 Consideration of Significant Criteria	4-33

102

103 Chapter 5 – Regulatory Impact Review

104

105	5.1 Introduction.....	5-1
106	5.2 Problem Statement	5-1
107	5.3 Objectives	5-1
108	5.4 Alternatives	5-1
109	5.5 Steps Taken to Minimize the Economic Impact	5-1
110	5.6 Determination of Insignificant Economic Impact on a Substantial Number of	
111	Small Entities	5-2
112	5.7 Determination of Insignificant Regulatory Action	5-4

113

114 Chapter 6 – List of Preparers

115

116 Chapter 7 – References

117

118 Appendices

119

120 Appendix A: ANPR Comments

121 Appendix B: Coordination Letters

122

123

Environmental Assessment and Regulatory Impact Review for the Definition of the Zero Mortality Rate Goal of the Marine Mammal Protection Act

Acronyms and Abbreviations

ANPR	Advance Notice of Proposed Rulemaking
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
EA	Environmental assessment
EIS	Environmental impact statement
ESA	Endangered Species Act
ETP	Eastern Tropical Pacific Ocean
FMP	Fishery management plan
FONSI	Finding of No Significant Impact
FR	<i>Federal Register</i>
IRFA/FRFA	Interim and Final Regulatory Flexibility Analysis
LOF	List of Fisheries
MMPA	Marine Mammal Protection Act
NEPA	National Environmental Policy Act
NMFS	National Marine Fisheries Service
N_{\min}	Minimum population estimate
NOAA	National Oceanic and Atmospheric Administration
OSP	Optimum sustainable productivity
OSY	Optimum sustainable yield
PBR	Potential biological removal
R_{\max}	Maximum net productivity rate
RFA	Regulatory Flexibility Act
SAR	Stock assessment report
SRG	Scientific review group
T_{ins}	Insignificance threshold
TRP	Take reduction plan
TRT	Take reduction team
ZMRG	Zero Mortality Rate Goal

1.0 PURPOSE AND NEED

1.1 Introduction

An ongoing problem is mortality and serious injury of marine mammals incidental to fisheries operations. The Marine Mammal Protection Act (MMPA) of 1972 specifically addresses this problem.

The National Marine Fisheries Service (NMFS), also known as the National Oceanic and Atmospheric Administration (NOAA) Fisheries, is responsible for implementing the MMPA. In 1994, MMPA amendments created Section 118, which includes provisions concerning incidental mortality and serious injury of marine mammals in commercial fisheries. One objective of these provisions, as described in Section 118(b), is to achieve the zero mortality rate goal (ZMRG). This EA focuses on the first provision (the target) of Section 118(b), which is *to reduce the mortality and serious injury of marine mammals incidental to commercial fisheries “to insignificant levels approaching a zero mortality and serious injury rate”* by April 30, 2001 (although the deadline has passed, the requirement must still be met). Other Section 118(b) provisions of the ZMRG include: fisheries that maintain the target levels of incidental mortality and serious injury do not have to further reduce incidental mortality and serious injury rates; the Secretary shall review progress of all commercial fisheries toward achieving the target and submit a report to Congress; and if, after review, a fishery does not achieve the target, NMFS will take appropriate action as described in Section 118(f), which describes the take-reduction process including its long-term goal of achieving ZMRG.

There is currently no statutory or regulatory definition of what levels would be “insignificant levels approaching a zero mortality and serious injury rate.” To determine if the goal of Section 118 is being met with respect to the ZMRG on a fishery-specific basis, it is necessary for NMFS to define ZMRG so that it can be quantified and individualized.

In August 2002 three environmental organizations sued NMFS (*Center for Biological Diversity, et al v. National Marine Fisheries Service*, Case No. C-02-3901-SC (N.D. Cal. 2003)) alleging lack of compliance with several requirements in Section 118, including failure to submit a report to Congress on the progress of commercial fisheries toward reaching the ZMRG. According to the April 2003 settlement agreement, NMFS agreed to submit for publication in the *Federal Register* a final rule defining ZMRG and to submit a report to Congress on progress of commercial fisheries toward reaching the ZMRG in June 2004.

This environmental assessment (EA) was prepared pursuant to the National Environmental Policy Act (NEPA) of 1969, the Council on Environmental Quality’s Regulations for Implementing NEPA (40 Code of Federal Regulations [CFR] 1500-1508), and the NOAA environmental review procedures (NOAA, 1999). This EA analyzes the potential environmental impacts of implementing several alternatives identified to define the ZMRG.

47

48

49 1.2 ZMRG — Legislative History

50

51 In the original MMPA of 1972, the ZMRG was directed at the yellowfin tuna purse seine
52 fishery in the Eastern Tropical Pacific Ocean (ETP). Because fishermen were
53 intentionally encircling dolphins to catch tuna, hundreds of thousands of dolphins were
54 killed annually. Although the ZMRG was directed specifically at the ETP tuna fishery,
55 the enacted language was sufficiently broad that it could include other US commercial
56 fisheries and fisheries in waters under US jurisdiction. Legislative history of the MMPA
57 provided that ZMRG was to include consideration of fishery economics and available
58 technology while addressing the need for immediate reduction of incidental mortality and
59 serious injury of marine mammals.

60

61 Since 1972, several pieces of legislation have amended the MMPA and contributed to the
62 evolution of the ZMRG concept:

63

- 64 • **1981 MMPA amendments:** The ZMRG requirement was determined to be
65 satisfied for the ETP yellowfin tuna fishery by continuation of applying the best
66 marine mammal safety techniques and equipment that are economically and
67 technologically practicable. For other fisheries, the goal remained unchanged, to
68 spur technological innovation to reduce incidental marine mammal takes.

69

- 70 • **1988 MMPA amendments:** These amendments included an interim exemption
71 to allow compliant and registered commercial fishing operations to incidentally
72 kill or seriously injure marine mammals while NMFS collected information on
73 the nature and level of marine mammal incidental mortality and serious injury in
74 commercial fisheries.

75

- 76 • **International Dolphin Conservation Act of 1992:** Instead of focusing on the
77 ZMRG objective of utilizing the best available technology, specific per-vessel
78 limits were set to limit dolphin mortality during certain time periods.

79

- 80 • **1994 MMPA amendments:** The 1994 amendments created Section 118, which
81 replaced the interim exemption program of 1988 with provisions to govern
82 interactions between marine mammals and all US commercial fisheries, with the
83 exception of the ETP tuna fishery. Section 118 identifies the short- and long-term
84 goals for marine mammal mortality and serious injury incidental to all
85 commercial fisheries and provides a mechanism by which non-complying
86 fisheries should reach those goals. While a definition of the short-term goal was
87 provided in legislation, no definition of ZMRG was provided even though
88 commercial fisheries were required to achieve ZMRG by April 30, 2001.

89

- 90 • **International Dolphin Conservation Program Act of 1997:** The ZMRG was
91 not specifically addressed, but the Act set a long-term, stock-specific, annual

92 mortality limit of less than or equal to 0.1 percent of the minimum population
93 estimate of the stock (N_{\min}).

94

95 The MMPA now retains the ZMRG but still does not define it. As part of the goal of
96 defining ZMRG, this EA's proposed action is for NMFS *to identify what levels of*
97 *mortality and serious injury would be considered insignificant and approaching a zero*
98 *rate*. Thus, the agency would define ZMRG so that it can be quantified and
99 individualized on a fishery-specific basis (NMFS, June 1995a).

100

101

102 1.3 ZMRG — Target Level

103

104 To determine progress of commercial fisheries, by fishery, toward the ZMRG as provided
105 by MMPA Sections 118(b) and (f), NMFS proposes to determine a target level of
106 incidental mortality and serious injury for each marine mammal stock affected by the
107 commercial fishery under consideration when deciding whether that fishery has attained
108 ZMRG. In this EA, the agency identifies this target level as the insignificance threshold
109 (T_{ins}), which indicates the maximum amount of incidental mortality and serious injury
110 that can be considered to be approaching a zero rate. If the amount of incidental
111 mortality and serious injury is less than or equal to T_{ins} for a particular stock, the level of
112 incidental mortality and serious injury would be considered insignificant and approaching
113 a zero rate for that stock.

114

115 To individualize the ZMRG, NMFS proposes that the T_{ins} be determined for each marine
116 mammal stock. A US commercial fishery that has achieved the ZMRG would have a
117 level of incidental mortality and serious injury less than or equal to the T_{ins} for each
118 marine mammal stock with which the fishery interacts. For example, one commercial
119 fishery may incidentally interact with three marine mammal stocks, in which case that
120 fishery would achieve ZMRG only if it has levels of incidental mortality and serious
121 injury that are lower than the respective T_{ins} for each of the three stocks. If a fishery does
122 not exceed the T_{ins} for any interacting marine mammal stock, the fishery would achieve
123 ZMRG.

Insignificance Threshold

The **insignificance threshold** (T_{ins}) is the upper limit of annual incidental mortalities and serious injuries for a marine mammal stock that could be considered insignificant and approaching a zero rate.

124

125 Under each alternative, the rate of the ZMRG is determined to be the annual incidental
126 mortality and serious injury of a marine mammal stock as a function of the stock's
127 population size or productivity. The basis of the ZMRG is the biological significance of
128 the amount of incidental mortality and serious injury to the stock; biological significance
129 takes into account stock productivity, including species-specific fecundity and population

130 growth rates. Therefore, the biological relevance of using a rate describing the number of
 131 incidental mortalities and serious injuries per year is less helpful than using a rate
 132 describing the number of incidental mortalities and serious injuries per year per
 133 population. Under each alternative in this EA, the rate units for the insignificance
 134 threshold would be annual incidental mortalities and serious injuries per 1,000 animals in
 135 the stock.

136

137

138 1.4 MMPA Elements Related to ZMRG

139

140 There are other MMPA elements that relate to ZMRG and the development of its
 141 quantitative definition as described in the following sections.

142

143

144 1.4.1 Potential Biological Removal Level

145

146 The MMPA provides that the potential biological removal level (PBR) for a marine
 147 mammal stock is the “maximum number of animals, not including natural mortalities,
 148 that may be removed from a marine mammal stock while allowing that stock to reach or
 149 maintain its optimum sustainable population.” Several alternatives considered in this EA
 150 define T_{ins} , and thus ZMRG, in terms of or as a derivative of a stock’s PBR.

151

Potential Biological Removal Level (PBR)

PBR is the maximum number of animals, not including natural mortalities, that may be removed from a marine mammal stock while allowing that stock to reach or maintain its optimum sustainable population.

To calculate PBR for any marine mammal stock,

$$PBR = N_{min} * 0.5R_{max} * F_r$$

where N_{min} = the minimum population estimate of the stock.

R_{max} = the maximum theoretical or estimated net productivity rate of the stock at a small population size.

F_r = a recovery factor of between 0.1 and 1.0.

152

153 If insufficient data exist to calculate R_{max} properly for a particular stock, default values
 154 are used. For cetaceans, the default R_{max} is four percent ($0.5R_{max} = 0.02$). For pinnipeds,
 155 the default R_{max} is 12 percent ($0.5R_{max} = 0.06$).

156

157 Default values of F_r have been assigned according to stock status. For healthy stocks, F_r
 158 equals 1.0; for endangered stocks, F_r equals 0.1; and for stocks with a threatened,

159 depleted, or unknown status, F_r equals 0.5. However, flexibility allows for adjustment of
160 the default F_r on a stock-specific basis if ample scientific data exist.

161

162

163 1.4.2 Fishery Classification

164

165 According to Section 118, NMFS classifies commercial fisheries based on frequency of
166 incidental mortality and serious injury of marine mammals. The agency must reexamine
167 the classification, known as the List of Fisheries (LOF), at least annually and publish any
168 necessary changes in the *Federal Register*. The LOF is based on annual stock assessment
169 reports (SARs) as well as other sources of new information. In the LOF, fisheries are
170 classified in three categories:

171

172 • Category I includes commercial fisheries with frequent incidental mortality and
173 serious injury of marine mammals.

174

175 • Category II includes commercial fisheries with occasional incidental mortality
176 and serious injury of marine mammals.

177

178 • Category III includes commercial fisheries with a remote likelihood of or no
179 known incidental mortality and serious injury of marine mammals.

180

181 Determining the “frequent,” “occasional,” and “remote likelihood/no known” thresholds
182 consists of a two-tiered approach to classify a fishery based on its annual interactions
183 with a specific stock. Tier 1 addresses cumulative impacts (incidental mortalities and
184 serious injuries of marine mammals due to commercial fishing operations) of all fisheries
185 on a particular stock. If such impacts are less than or equal to ten percent of that stock’s
186 PBR, all fisheries interacting with that stock are classified in Category III. Otherwise,
187 these fisheries are subject to analysis in Tier 2, which addresses impacts of individual
188 fisheries on each stock. According to Tier 2 criteria:

189

190 • Category I comprises fisheries with incidental mortality and serious injury greater
191 than or equal to 50 percent of the stock’s PBR.

192

193 • Category II comprises fisheries with incidental mortality and serious injury
194 between one and 50 percent of the stock’s PBR.

195

196 • Category III comprises fisheries with incidental mortality and serious injury less
197 than or equal to one percent of the stock’s PBR.

198

199 In the absence of reliable data to determine the frequency of marine mammal incidental
200 mortality and serious injury in a particular commercial fishery, NMFS determines
201 Category II and III classifications based on other factors: fishing techniques, gear used,
202 methods to deter marine mammal, target species, seasons and areas fished, qualitative
203 data from logbooks or fisher reports, stranding data, and the species and distribution of
204 marine mammals in the area.

205

206

207 1.4.3 Take Reduction Plans

208

209 For all strategic stocks that interact with Category I or II commercial fisheries, the
210 MMPA generally requires the formation of a take reduction team (TRT) to prepare a take
211 reduction plan (TRP). TRTs must include a balanced representation of various
212 stakeholders listed under the MMPA. TRPs are designed to prevent further decline and
213 to assist in the recovery of a strategic marine mammal stock that interacts with Category I
214 or II commercial fisheries.

215

216

217

Strategic Stock

218

219

220

221

222

223

224

225

226

227 Section 118 generally requires development and implementation of a TRP for all strategic
228 stocks that interact with Category I or II fisheries. A TRP may also be designed for
229 Category I fisheries that have high incidental mortality and serious injury across a
230 number of strategic marine mammal stocks. If NMFS has insufficient funds to develop
231 and implement all required TRPs, priority is given to marine mammal stocks with
232 incidental mortality and serious injury exceeding PBR, stocks with small population size,
233 and stocks with the highest rate of decline. TRPs are not required for Category III
234 fisheries.

235

236 The immediate goal of a TRP is to reduce, within six months of implementation,
237 incidental mortality and serious injury of a strategic stock to a level below PBR. *The*
238 *long-term goal of a TRP is to reduce, within five years of implementation, the incidental*
239 *mortality and serious injury to insignificant levels approaching a zero mortality and*
240 *serious injury rate, taking into account available technology (such as modified fishing*
241 *gear and techniques), economic feasibility, and state and regional fishery management*
242 *plans (FMPs). NMFS must consider the draft TRP submitted by the TRT and develop*
243 *regulations to implement the plan, which also requires NEPA analysis.*

244

1.5 ZMRG — Regulatory Status

In its *Environmental Assessment of Proposed Regulations to Govern Interactions between Marine Mammals and Commercial Fishing Operations, under Section 118 of the Marine Mammal Protection Act* (NMFS, 1995a), NMFS included a proposed definition of the ZMRG. However, the ZMRG definition was not included in the final rule (NMFS, 1995c) because the agency was still considering what would be an appropriate goal. The proposed rule in 1995 defined ZMRG as being satisfied by meeting one of two criteria:

- 1) A fishery, collectively with other commercial fisheries, removes ten percent or less of any stock's PBR (see section 1.4.1).
- 2) A fishery by itself removes one percent or less of a stock's PBR for a stock that has an annual removal rate of more than ten percent of its PBR when calculated collectively with other commercial fisheries.

According to the 1995 proposed rule, fisheries that had achieved the ZMRG would be classified in Category III (see section 1.4.2).

NMFS currently uses ten percent of PBR in SARs to determine if a fishery's level of incidental marine mammal mortality and serious injury meets the ZMRG. The SARs have no regulatory effect, and NMFS will continue to use the ten-percent-of-PBR criterion until a final rule defining ZMRG is published.

1.6 Summary of Purpose and Need

NMFS is responsible for implementing Section 118 of the MMPA. Section 118 describes regulations concerning incidental mortality and serious injury of marine mammals in commercial fisheries. The objective of these regulations is to achieve the ZMRG, or to reduce mortality and serious injury of marine mammals incidental to commercial fisheries to insignificant levels approaching a zero rate. There is currently no regulatory definition of what levels would be "insignificant levels approaching a zero mortality and serious injury rate" on a fishery-specific basis. Thus, to determine if the goal of Section 118 is being met with respect to ZMRG, it is necessary for NMFS to define the ZMRG so that it can be quantified and individualized.

Further, in August 2002, three environmental organizations sued NMFS alleging lack of compliance with Section 118 provisions. According to the April 2003 settlement agreement, NMFS agreed to submit a final rule defining ZMRG for publication in the *Federal Register* and a report to Congress on progress of commercial fisheries towards reaching the ZMRG in June 2004.

To determine progress of commercial fisheries, by fishery, as provided by MMPA Sections 118(b) and (f), NMFS must determine the T_{ins} of each marine mammal stock

289 affected by the commercial fishery under consideration when deciding whether that
290 fishery has attained ZMRG. A successful, implementable alternative would be consistent
291 with the four statutory requirements related to ZMRG as described in MMPA Section
292 118(b).

293

294 There are other MMPA elements that relate to ZMRG and the development of its
295 quantitative, regulatory definition. NMFS currently uses PBR as a component in
296 determining whether a commercial fishery has achieved the ZMRG for purposes of
297 SARs. Several alternatives considered in this EA define T_{ins} , and thus ZMRG, in terms
298 of a stock's PBR.

299

300 Another element of Section 118 that relates to ZMRG is the take-reduction concept.
301 Section 118 generally requires development and implementation of a TRP for all strategic
302 stocks that interact with Category I or II fisheries. The immediate goal of a TRP is to
303 reduce, within six months of implementation, incidental mortality and serious injury of a
304 strategic stock to a level below PBR. The long-term goal of a TRP is to reduce, within
305 five years of implementation, the incidental mortality and serious injury to insignificant
306 levels approaching a zero mortality and serious injury rate, taking into account several
307 listed factors.

308

309

310 1.7 The NEPA Process

311

312 NEPA, enacted by Congress in 1969, requires the consideration of environmental issues
313 in Federal agency planning and decision-making. Under NEPA, Federal agencies must
314 prepare an environmental impact statement (EIS) for those proposed Federal actions that
315 would significantly affect the quality of the human environment. Federal agencies may
316 prepare an EA when the potential significance of a proposed Federal action's
317 environmental impacts is unknown or to provide Federal decision-makers with sufficient
318 evidence and analysis to determine whether or not to prepare an EIS. The EA includes
319 brief discussions of the following:

320

- 321 • The purpose and need for the proposed action.
- 322 • The alternatives.
- 323 • The existing conditions.
- 324 • The environmental impacts of the proposed action and alternatives.
- 325 • A listing of agencies and persons consulted.

326

327 If on the basis of the EA, Federal decision-makers determine that the proposed action
328 would not have a significant impact on the human environment, a Finding of No
329 Significant Impact (FONSI) is issued. If on the basis of the EA, Federal decision-makers
330 determine that the proposed action would have a significant impact on the human
331 environment, an EIS is prepared.

332

333

NOAA's NEPA Guidelines/Regulations

334

335 This EA addresses the proposed Federal action of creating a new rule to define and
336 implement the ZMRG.

337

338 NOAA has guidelines for implementing NEPA, which include criteria for determining
339 significance of impacts (NOAA, 1999). Such criteria should be used to determine what
340 type of environmental review is appropriate for NEPA compliance. Significance requires
341 consideration of context and intensity. The contextual facet means analysis of the action
342 as it may affect society, as a whole, regionally, and locally. Intensity describes the
343 severity of the impact. When determining significance, several factors concerning
344 intensity should be considered (40 CFR 1508.27):

345

346 • Impacts may be both beneficial and adverse.

347

348 • Degree to which public health and safety is affected.

349

350 • Unique characteristics of the geographic area.

351

352 • Degree to which effects on the human environment are likely to be highly
353 controversial.

354

355 • Degree to which effects are highly uncertain or involve unique or unknown risks.

356

357 • Degree to which the action establishes a precedent for future actions with
358 significant effects or represents a decision in principle about a future
359 consideration.

360

361 • Individually insignificant but cumulatively significant impacts.

362

363 • Degree to which the action adversely affects entities listed in or eligible for
364 listing in the National Register of Historic Places, or may cause loss or
365 destruction of significant scientific, cultural, or historic resources.

366

367 • Degree to which endangered or threatened species, or their critical habitat as
368 defined under the Endangered Species Act of 1973, are adversely affected.

369

370 • Whether a violation of Federal, state, or local law for environmental protection is
371 threatened.

372

373 • Whether a Federal action may result in the introduction or spread of a
374 nonindigenous species.

375

375 1.8 Other Environmental Requirements Considered

376
377 Although this EA pertains specifically to provisions of the MMPA, NMFS must follow
378 other applicable laws and regulations in developing a new rule for the ZMRG definition.
379

380 1.8.1 Endangered Species Act

381
382
383 The Endangered Species Act (ESA) provides broad protection for species of fish,
384 wildlife, and plants that are listed as threatened or endangered. As per the ESA, it is
385 unlawful for any person subject to the jurisdiction of the United States (US) to “take” any
386 such species within the US or the high seas, unless authorized under specific provisions
387 of the ESA. The ESA defines “take” as to harass, harm, pursue, hunt, shoot, wound, kill,
388 trap, capture, or collect, or attempt to engage in any such conduct to species listed as
389 threatened or endangered. In addition, Federal agencies in consultation with NMFS or
390 the US Fish and Wildlife Service (depending on the species involved), must ensure that
391 any action by such agency is not likely to jeopardize the continued existence of any
392 endangered or threatened species or result in destruction or adverse modification of
393 designated critical habitat.
394

395 1.8.2 Magnuson-Stevens Fishery Conservation and Management 396 Act

397
398
399 The Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens
400 Act), enacted to conserve and restore the nation’s fisheries, requires regional fisheries
401 councils to reduce overfishing and bycatch and to describe and identify essential fish
402 habitat (EFH), defined as those waters and substrate necessary to fish for spawning,
403 breeding, feeding, or growth to maturity. Under the act, Federal agencies must consult
404 with the Secretary of Commerce regarding any activity, or proposed activity, authorized,
405 funded, or undertaken by the agency that may adversely affect fisheries and fish habitats.
406

407 1.8.3 Executive Order 12866: Regulatory Planning and Review

408
409
410 Executive Order (EO) 12866, Regulatory Planning and Review, requires Federal agencies
411 to follow “a program to reform and make more efficient the regulatory process.” During
412 regulatory decision-making, Federal agencies are required to maximize net benefits after
413 conducting quantitative and qualitative cost-benefit analyses, including the option of not
414 regulating.
415

415 1.8.4 Regulatory Flexibility Act

416

417 According to the Regulatory Flexibility Act (RFA), Federal agencies must consider

418 economic impacts that their rules may have on small entities, including small businesses.

419 The agency must prepare an Interim and Final Regulatory Flexibility Analysis

420 (IRFA/FRFA), unless the agency can certify that the rule would not have “a significant

421 economic impact on a substantial number of small entities.” In an IRFA/FRFA, among

422 other things, regulatory alternatives must be evaluated that achieve the objective of

423 applicable statutes and that might minimize negative economic impacts on small entities.

424

2.0 ALTERNATIVES

NMFS published an advance notice of proposed rulemaking (ANPR) (NMFS, 2003a) proposing three options to estimate the T_{ins} for marine mammal stocks. T_{ins} essentially designates the maximum value that is considered an insignificant level of mortality and serious injury approaching a zero rate. The three options are the premises of the action alternatives addressed in this EA. The action alternatives (Alternatives 2, 3, and 4) define ZMRG in terms of T_{ins} .

In addition to the three action alternatives, this EA also analyzes the No Action Alternative according to CEQ's NEPA regulation guidelines. NMFS received suggestions for additional alternatives in comments on the ANPR (see Appendix A) and considered these additional alternatives but dismissed them from further analysis as discussed in section 2.3.

2.1 Alternative 1: No Action Alternative

The No Action Alternative would maintain status quo, thus not presenting any regulatory definition of ZMRG. As discussed in Chapter 1, although there is no regulatory definition of ZMRG, NMFS has been using the criterion of ten percent of a stock's PBR in SARs to evaluate whether incidental mortality and serious injury is at insignificant levels approaching a zero rate (see Table 2-1). NMFS will continue using this criterion in SARs until a final rule is completed defining ZMRG. However, ZMRG would continue to have no regulatory definition; thus, it would be unclear how ZMRG applies in the implementation of MMPA Section 118.

Table 2-1 delineates the four alternatives by showing how T_{ins} is calculated and how it relates to the PBR equation. Also, the last column in the table shows the amount of recovery delay under each alternative; the delay in recovery is determined using the assumption that all other factors contributing to a delay in the recovery of a stock are negligible. Other such factors may include natural events or other anthropogenic activities unrelated to commercial fishing operations. Therefore, the recovery delay in the table refers only to delays caused by incidental mortality and serious injury caused by commercial fisheries.

40
41
42

Table 2-1
Definitions of Insignificance Threshold (T_{ins})

	Calculation	Relative to PBR	Recovery Delay**
Alternative 1: No Action Alternative*	$T_{ins} = 0.1 (N_{min} * 0.5R_{max} * F_r)$	All stocks: 10% PBR	Healthy stocks: $\leq 10\%$ Stocks of threatened, depleted, or unknown status: $\leq 5\%$ Endangered stocks: $\leq 1\%$
Alternative 2: Preferred Alternative*	$T_{ins} = 0.1 (N_{min} * 0.5R_{max} * F_r)$	All stocks: 10% PBR	Healthy stocks: $\leq 10\%$ Stocks of threatened, depleted, or unknown status: $\leq 5\%$ Endangered stocks: $\leq 1\%$
Alternative 3	Cetaceans: $T_{ins} = 0.002 * N_{min}$ Pinnipeds: $T_{ins} = 0.006 * N_{min}$	Healthy stocks: 10% PBR Stocks of threatened, depleted, or unknown status: 50% PBR Endangered stocks: 100% PBR	All stocks: $\leq 10\%$
Alternative 4	Cetaceans: $T_{ins} = 0.001 * N_{min}$ Pinnipeds: $T_{ins} = 0.003 * N_{min}$	Healthy stocks: 5% PBR Stocks of threatened, depleted, or unknown status: 10% PBR Endangered stocks: 50% PBR	All stocks: $\leq 5\%$
<p>* Alternatives 1 and 2 differ only with respect to regulatory power—ZMRG would remain undefined under Alternative 1 and would, therefore, lack clear application in a regulatory manner. ** This column refers to the recovery of a stock excluding all factors other than commercial fishing operations. Natural events or other anthropogenic factors could also contribute to delay in recovery.</p>			

43

44 The No Action Alternative is not a feasible option because it would impede the ability of
 45 NMFS to apply the MMPA as provided in sections 1.1 and 1.6 of this EA, and it would
 46 not be consistent with the settlement agreement described in these sections. The No
 47 Action Alternative would not result in any regulatory definition of ZMRG. Although the
 48 No Action Alternative would not be consistent with the statement of purpose and need for
 49 this action, this alternative will be analyzed throughout the EA in order to provide a
 50 baseline to which the potential impacts of the various alternatives can be compared.

51

52

53 2.2 Action Alternatives

54

55 The action alternatives differ only in the way T_{ins} is calculated. The requirement remains
 56 the same—each action alternative defines ZMRG as the requirement for commercial
 57 fisheries to reduce incidental mortality and serious injury of marine mammals to levels
 58 equal to or below T_{ins} , as calculated on a stock-specific basis for marine mammals with
 59 incidental interactions with the commercial fishery under analysis. Because T_{ins} is
 60 calculated differently under each action alternative, there are differences in the number
 61 and types of fisheries resulting in marine mammal incidental mortality and serious injury
 62 greater than the T_{ins} under each alternative.

63

63 Additionally, all three action alternatives define “approaching zero” as infinitely nearing
64 zero, not equal to zero. That is, “approaching zero” means getting as close as possible to
65 zero. This does not mean that the target level, T_{ins} , is a moving target. Instead, T_{ins}
66 equals the target level that was calculated to be as close to zero as possible for a
67 particular stock.

68
69 “Rate” would be defined as the number of animals that die or are seriously injured each
70 year per 1,000 animals in that population. Because such a rate takes into account a
71 specific stock’s status as opposed to the status of the species as a whole, it best describes
72 incidental mortality and serious injury of a marine mammal stock regarding productivity
73 and biological significance (see section 1.3). Also, using units of animals per year
74 facilitates coordination of calculations of T_{ins} with the LOF. NMFS updates the LOF
75 annually based on any new information on each fishery’s level of incidental mortality and
76 serious injury compared to the PBR of each stock with which each fishery interacts; other
77 factors can also be involved in the process of updating the LOF.

78
79 ZMRG applies to all marine mammal stocks and all commercial fisheries. Based on the
80 1995 and 2004 proposed rules (NMFS, 1995b & 2004f), each action alternative follows a
81 two-tiered approach toward achieving ZMRG for each stock. ZMRG could be achieved
82 by meeting either of the two criteria. According to the first criterion, incidental mortality
83 and serious injury of one marine mammal stock would have to be insignificant (equal to
84 or less than T_{ins}) for all fisheries combined. The second criterion applies only to cases in
85 which all fisheries collectively exceed T_{ins} for a particular stock but individually do not
86 exceed T_{ins} for that stock. The second criterion of the two-tiered approach would require
87 each individual fishery to incur a level of incidental mortality and serious injury that is no
88 more than ten percent of T_{ins} . This is based on the theory that some fisheries would be
89 responsible for most of the incidental mortality and serious injury while others would be
90 responsible for insignificant amounts, that is, ten percent or less of the T_{ins} for that stock
91 (Barlow, et al., 1995). Each action alternative described in this EA follows this two-
92 tiered approach in determining whether ZMRG has been attained.

93
94 The T_{ins} calculation is based on the PBR calculation and, therefore, is subject to similar
95 limitations and assumptions. The logistic model that is the basis for T_{ins} and PBR
96 calculations may present assumptions that are not valid for all stocks, such as some
97 declining or very small stocks (Wade and Angliss, 1997; NMFS, 2004f). The model
98 assumes that populations would grow if human-caused mortality is below sustainable
99 levels. This assumption is false for some stocks, such as Hawaiian monk seals, that
100 experience declining populations without known incidental mortality and serious injury
101 levels high enough to cause the decline. Therefore, under each alternative, the
102 calculation of T_{ins} may not be applicable to every marine mammal stock. In such cases,
103 NMFS may have to do additional calculations or use a subjective adjustment to determine
104 the T_{ins} . For the purposes of this EA, default values will be used for $0.5R_{max}$ and F_r (see
105 section 1.4.1 for a description).

106

2.2.1 Alternative 2: Preferred Alternative

106
107
108 NMFS has identified Alternative 2 as the preferred alternative for the proposed action.
109 Alternative 2 differs from the No Action Alternative only in that the ZMRG would have a
110 regulatory definition and, therefore, have clear application in a regulatory manner.
111 Alternative 2 defines T_{ins} as ten percent of the stock's PBR (see Table 2-1).

112
113 Alternative 2 would use varying recovery factors, and thus have different recovery
114 delays, for stocks depending on their status (see Table 2-1). For the purposes of this EA,
115 calculating recovery delay is based only on interactions with commercial fishing
116 operations and does not include other factors such as natural events and other
117 anthropogenic factors unrelated to commercial fisheries. For healthy stocks, there would
118 be no more than a ten percent delay in recovery. For stocks of a threatened, depleted, or
119 unknown status, there would be no more than a five percent delay in recovery. For
120 endangered stocks, there would be no more than a one percent delay in recovery.

2.2.2 Alternative 3

121
122
123
124
125 Alternative 3 defines T_{ins} as the value that would not cause more than a ten percent delay
126 in recovery of the marine mammal stock. Under Alternative 3, T_{ins} would be calculated
127 differently for cetaceans and pinnipeds. Also, manatees and polar bears would be treated
128 as cetaceans for the purposes of calculating T_{ins} under Alternative 3, and sea otters
129 (excluding the California sea otter as provided in Section 118(a)(4) of the MMPA) would
130 be treated as pinnipeds for the purposes of calculating T_{ins} under Alternative 3. This
131 determination is based on similarity of life history characteristics and R_{max} values—
132 manatees and polar bears are biologically similar to cetaceans while sea otters are
133 biologically similar to pinnipeds (Barlow, et al., 1995). Under Alternative 3, T_{ins} for
134 cetaceans would be 0.2 percent of N_{min} , and T_{ins} for pinnipeds would be 0.6 percent of
135 N_{min} (see Table 2-1).

136
137 For endangered stocks, T_{ins} would be equal to PBR under Alternative 3. This is
138 inconsistent with MMPA Section 118(f)(2), which provides that each TRP shall have a
139 long-term goal (reaching ZMRG) separate from its short-term goal (reducing incidental
140 mortality and serious injury to levels less than PBR). Therefore, Alternative 3 is not a
141 feasible option for implementing the proposed action. However, analysis of Alternative 3
142 will be continued throughout this EA for purposes of comparison to the other alternatives.

2.2.3 Alternative 4

143
144
145
146
147 Alternative 4 defines T_{ins} as 0.1 percent of N_{min} for cetaceans or 0.3 percent of N_{min} for
148 pinnipeds. This definition results in a T_{ins} value that would not cause more than a five
149 percent delay in recovery of the marine mammal stock. Also, manatees and polar bears
150 would be treated as cetaceans for the purposes of calculating T_{ins} under Alternative 4, and

151 sea otters (excluding the California sea otter as provided in Section 118(a)(4) of the
152 MMPA) would be treated as pinnipeds for the purposes of calculating T_{ins} under
153 Alternative 4. This determination is based on similarity of life history characteristics and
154 R_{max} values—manatees and polar bears are biologically similar to cetaceans while sea
155 otters are biologically similar to pinnipeds (Barlow, et al., 1995). Under Alternative 4,
156 T_{ins} for cetaceans would be 0.1 percent of N_{min} , and T_{ins} for pinnipeds would be 0.3
157 percent of N_{min} (see Table 2-1).
158

159 160 **2.3 Alternatives Considered but Dismissed from Further** 161 **Analysis**

162
163 Based on the 14 comment letters received in response to the ANPR (see Appendix A),
164 five other alternatives were suggested. However, for various reasons, as stated below, the
165 suggested alternatives have been dismissed from further analysis in this EA.
166

167 168 **2.3.1 Alternative 5**

169
170 Alternative 5 calls for the use of PBR and a technology standard to define ZMRG for
171 stocks that are not endangered, threatened, or depleted. For endangered, threatened, or
172 depleted stocks, Alternative 5 suggests using a more restrictive standard in addition to the
173 PBR calculation to hasten the achievement of ZMRG for such stocks.
174

175 The MMPA and its legislative history are clear that a technology standard cannot define
176 ZMRG because the ZMRG should be based on biological significance as discussed in
177 section 1.3. The PBR and ZMRG should be calculated based on the biological
178 significance of incidental mortality and serious injury to a marine mammal stock, not on
179 a standard created to describe the effect of technology on the stock. For this reason, this
180 EA does not further consider Alternative 5.
181

182 183 **2.3.2 Alternative 6**

184
185 Alternative 6 suggests a modification of the ANPR's Option 1 (the model for Alternative
186 2 in this EA). The modification consists of a second component that requires further
187 reductions in mortality and serious injury for stocks with high PBR values. The comment
188 did not include details on the calculation of the second component.
189

190 Alternative 6 is very similar to Alternative 4 in that the calculation of T_{ins} allows for
191 further reductions in mortality and serious injury for stocks with high PBRs. For
192 example, consider healthy stocks, which have high PBRs and a default F_r of 1.0. Under
193 Alternative 6, a healthy stock would have a T_{ins} less than the T_{ins} calculated for
194 Alternative 2 (Option 1 from the ANPR) when including the second component. Under

195 Alternative 4, a healthy stock would have a T_{ins} equal to half the value of T_{ins} calculated
 196 for Alternative 2.

197

198 For healthy stocks,

199

200 Alternative 2: $T_{ins} = 0.1 (N_{min} * 0.5R_{max})$

201 Alternative 4: $T_{ins} = 0.05 (N_{min} * 0.5R_{max})$

202 Alternative 6: $T_{ins} = 0.1 (N_{min} * 0.5R_{max}) * x$,

203

where x is the second component.

204

205 The comment proposing Alternative 6 did not include specific suggestions for the second
 206 component. As demonstrated above, Alternative 4 could produce a similar value for T_{ins}
 207 when compared to Alternative 6. For example, if x equals 0.5, Alternatives 4 and 6
 208 would be identical. Because it is not possible to clearly distinguish Alternative 6 from
 209 Alternative 4 for stocks with high PBRs, Alternative 6 is not considered further in this
 210 EA.

211

212

213 **2.3.3 Alternative 7**

214

215 Alternative 7 consists of six major components:

216

217 • ZMRG would be equivalent to PBR.

218

219 • ZMRG would not apply to

220

221 – robust stocks.

222

222 – severely endangered stocks (i.e., $PBR \leq 5$).

223

223 – stocks that are not under a MMPA management program.

224

225 • The Secretary would prioritize the application of the ZMRG for stocks with

226

227 – small populations.

228

228 – rapidly declining populations.

229

229 – a level of incidental mortality and serious injury that has not dropped
 230 significantly within five years of TRP implementation.

231

232 • ZMRG definition must incorporate available technology and economic feasibility.

233

234 • The Secretary, in coordination with the TRT and the SRG, would review and
 235 determine the availability of technology and economic feasibility.

236

237 • If technology is deemed unavailable and a fishery is not achieving the ZMRG
 238 after five years under an approved TRP, the Secretary would work with fishery
 239 participants to develop and implement the appropriate technology.

240

241 NMFS currently prioritizes the development and implementation of TRPs for stocks with
242 small populations, declining populations, or incidental mortality and serious injury
243 exceeding that stock's PBR.

244

245 Elements of Alternative 7 are inconsistent with the MMPA, and therefore, this alternative
246 is not considered further in this EA. Specifically, the MMPA mandates the application of
247 the ZMRG to all commercial fisheries; this includes fisheries that interact with any
248 marine mammal stock, regardless of its status. In addition, as discussed in section 2.2.2,
249 MMPA Section 118(f)(2) provides that reducing incidental mortality and serious injury to
250 levels less than PBR is a separate goal from reaching ZMRG; thus, ZMRG cannot be
251 equivalent to PBR.

252

253

254 **2.3.4 Alternative 8**

255

256 Alternative 8 outlines a three-part approach to defining ZMRG. First, NMFS would
257 adopt as the final rule the current criterion for determining ZMRG for purposes of SARs
258 as described in Option 1 of the ANPR (the model for Alternative 2 in this EA). Second,
259 if current levels of incidental mortality and serious injury from commercial fishing for a
260 particular marine mammal stock are below the T_{ins} calculated under Alternative 2, the T_{ins}
261 for that stock would be set no higher than the current level of incidental mortality and
262 serious injury. Such a criterion would satisfy the congressional intent of minimizing
263 incidental mortality and serious injury of marine mammals as much as possible. The
264 third element of this alternative requires NMFS to revisit periodically the T_{ins} for marine
265 mammal stocks in commercial fisheries with a non-zero rate of mortality and serious
266 injury. The T_{ins} for such stocks would be gradually reduced to force technology to play a
267 role in achieving the ZMRG.

268

269 Alternative 8 employs a constantly-moving target. The concept of ratcheting down the
270 amount of allowable incidental mortality and serious injury is inconsistent with the
271 MMPA's ZMRG criterion in Section 118(b)(2): fisheries that have achieved the target
272 level are not required to reduce further incidental mortality and serious injury of marine
273 mammals. If the target is continually being lowered, the fishermen would not have a
274 clear, specific goal for reduction of incidental mortality and serious injury, which could
275 create a disincentive for technological innovation designed to protect marine mammals.
276 Such a scheme of ratcheting down the target precludes the quantification of and clear
277 regulatory definition of ZMRG. Therefore, Alternative 8 is not considered further.

278

279

280 **2.3.5 Alternative 9**

281

282 One comment proposed that the ZMRG would not be achieved until incidental mortality
283 and serious injury equals zero.

284

285 This alternative does not take into account that the ZMRG is a level *approaching* a zero
286 rate, not an absolute value of zero. The MMPA provides exceptions to the general

287 prohibition of taking marine mammals that generally allow some level of incidental
288 mortality and serious injury consistent with the purposes and policies of the Act, thus
289 allowing for continued human activities in the marine environment, including
290 commercial fishing operations. The statutory language of Section 118(b) of the MMPA
291 specifically provides for reduction in levels of incidental mortality and serious injury to
292 insignificant levels *approaching*, not *equal to*, zero. Additionally, Section 118(f)
293 provides that a TRP's long-term goal (achieving ZMRG) should take into account fishery
294 economics, availability of existing technology, and existing FMPs. Since Alternative 9 is
295 inconsistent with the MMPA, it is not considered further in this EA.

296

297

298

299

300

301

3.0 EXISTING CONDITIONS

Marine mammal stocks are subjected to anthropogenic threats including fishery operations, ship strikes, pollution, and noise. Because the ZMRG applies only to US commercial fisheries that incidentally take marine mammals, this chapter has two main sections: the status of protected marine populations and a description of active US commercial fisheries.

3.1 Status of Protected Marine Populations

The following sections discuss the status of marine populations that are protected by the MMPA and/or the ESA.

3.1.1 Marine Mammals

The final 2002 SARs (NMFS, 2002a, 2002b, and 2002c) and the draft 2003 SARs (NMFS, 2003c) discuss comprehensively the status of marine mammal populations in US waters. The 2003 SARs are currently being finalized and are expected to be available to the public sometime in spring 2004. The information presented in the final 2002 SARs, draft 2003 SARs (NMFS, 2003c), and *Environmental Assessment of Proposed Regulations to Govern Interactions between Marine Mammals and Commercial Fishing Operations, under Section 118 of the Marine Mammal Protection Act* (NMFS, 1995a) are incorporated here by reference.

Depleted and ESA-listed Stocks

Table 3-1 lists all domestic depleted, threatened, and endangered marine mammal stocks as well as stocks that are candidates for ESA listing.

Recovery plans exist for the blue whale (NMFS, 1998a), the Hawaiian monk seal (NMFS, 1983), the humpback whale (NMFS, 1991a), the Northern right whale (NMFS, 1991b), and the Steller sea lion (NMFS, 1992). The recovery plans contain more current information on each species and are incorporated by reference.

Also, as required by the MMPA, a Conservation Plan exists for the North Pacific fur seal (NMFS, 1993) and is incorporated by reference.

**Table 3-1
Domestic Depleted and ESA-listed or –Candidate Marine Mammal Stocks**

Common Name	Scientific Name	Status*
Blue Whale	<i>Balaenoptera musculus</i>	E
Bowhead Whale	<i>Balaena mysticetus</i>	E, D
Caribbean Monk Seal	<i>Monachus tropicalis</i>	E
Coastal Spotted Dolphin	<i>Stenella attenuata graffmani</i>	D
Cook Inlet Beluga Whale	<i>Delphinapterus leucas</i>	D, C
Eastern Spinner Dolphin	<i>Stenella longirostris orientalis</i>	D
Fin Whale	<i>Balaenoptera physalus</i>	E
Guadalupe Fur Seal	<i>Arctocephalus townsendi</i>	T
Hawaiian Monk Seal	<i>Monachus schauinslandi</i>	E, D
Humpback Whale	<i>Megaptera novaeangliae</i>	E
Bottlenose Dolphin (US mid-Atlantic coastal migratory stock)	<i>Tursiops truncatus</i>	D
Killer Whale (Eastern North Pacific Southern Resident stock)	<i>Orcinus orca</i>	D
North Atlantic Right Whale	<i>Balaena glacialis</i>	E
North Pacific Fur Seal	<i>Callorhinus ursinus</i>	D
Northeastern Offshore Spotted Dolphin	<i>Stenella attenuata</i>	D
Northern Sea Otter	<i>Enhydra lutris kenyoni</i>	C
Sei Whale	<i>Balaenoptera borealis</i>	E
Southern Sea Otter**	<i>Enhydra lutris nereis</i>	T
Sperm Whale	<i>Physeter macrocephalus</i>	E
Steller Sea Lion	<i>Eumetopias jubatus</i>	E, T
West Indian Manatee	<i>Trichechus manatus</i>	E
* E = endangered; T = threatened; C = candidate; D = depleted.		
** The southern sea otter, also called the California sea otter, is exempt from MMPA Section 118.		
Sources: NMFS, 2004c; USFWS, 2004.		

3.1.2 Sea Turtles

All six sea turtles that occur in US waters are listed under the ESA (see Table 3-2) and have recovery plans, all of which were finalized between 1991 and 1998. Being caught incidentally in fishing gear is an unquantified, ongoing problem for sea turtles. Use of turtle excluder devices is required to help reduce sea turtle bycatch in some commercial fisheries. Habitat loss, egg poaching, marine debris, beach nourishment, and artificial lighting are also common threats to sea turtles.

**Table 3-2
Sea Turtles that Occur in US Waters**

Common Name	Scientific Name	Status*
Green Turtle	<i>Chelonia mydas</i>	E, T**
Hawksbill Turtle	<i>Eretmochelys imbricata</i>	E
Kemp's Ridley Turtle	<i>Lepidochelys kemp</i>	E
Leatherback Turtle	<i>Dermochelys coriacea</i>	E
Loggerhead Turtle	<i>Caretta caretta</i>	T
Olive Ridley Turtle	<i>L. olivacea</i>	E, T**
* E = endangered; T = threatened. ** Status assigned according to population. Source: NMFS, 2004a.		

3.1.2.1 Green Turtle

The green turtle is a circumglobal species found in tropical and subtropical waters. Posthatchling and small juvenile green turtles reside in oceanic waters. Adults are predominantly tropical and spend most of their time in shallow, nearshore areas. However, they are known to undertake long oceanic migrations between nesting and foraging habitats.

All green turtle populations are threatened except the breeding populations off Florida and the Pacific coast of Mexico, which are endangered. Since the 1978 listing, the populations have not improved significantly (NMFS, 2004a). The green turtle recovery plans contain more current information and are incorporated by reference (NMFS and USFWS, 1991a, 1998a, and 1998b).

3.1.2.2 Hawksbill Turtle

Hawksbill sea turtles are found in tropical and subtropical seas of the Atlantic, Pacific, and Indian Oceans. They are found along the continental US coastline from Massachusetts southward, including all of the Gulf of Mexico coastal states; however, sightings north of Florida are rare. Like the green turtle, posthatchling hawksbills are pelagic, and adults return to a variety of shallow coastal habitats including rocky outcrops, coral reefs, lagoons on oceanic islands, and estuaries.

The hawksbill has been endangered since its 1970 listing (NMFS, 2004a). The hawksbill turtle recovery plans contain more current information and are incorporated by reference (NMFS and USFWS, 1993 and 1998c).

3.1.2.3 Kemp's Ridley Turtle

The Kemp's ridley turtle does not have as widespread a distribution as other sea turtles. Adults are generally restricted to the coastal areas of Gulf of Mexico and the northwestern Atlantic Ocean. Nesting occurs primarily on a single beach near Rancho

Nuevo in southern Tamaulipas, which is on the northeastern coast of Mexico. There are a few additional nests in Texas, Florida, South Carolina, and North Carolina.

The Kemp's ridley turtle has been endangered since its listing in 1970. After long periods of decline, today the population appears to be in the early stages of recovery due to protective measures (NMFS, 2004a). The Kemp's ridley turtle recovery plan contains more current information and is incorporated by reference (NMFS and USFWS, 1992b).

3.1.2.4 Leatherback Turtle

The leatherback is the largest living turtle (NMFS, 2004a). Leatherback turtles are distributed worldwide in tropical and temperate waters of the Atlantic, Pacific, and Indian Oceans. Adult leatherbacks are highly migratory and are believed to be the most pelagic of all sea turtles. Females are often observed near the edge of the continental shelf but do not nest frequently in the US.

Leatherbacks were listed as endangered in 1970. The leatherback turtle recovery plans contain more current information and are incorporated by reference (NMFS and USFWS, 1992a and 1998d).

3.1.2.5 Loggerhead Turtle

Loggerhead sea turtles are found in tropical, subtropical, and temperate waters throughout the world. The loggerhead is the most abundant sea turtle in US coastal waters. They frequent continental shelves, bays, estuaries, and lagoons.

Loggerheads were listed as threatened in 1978, and their status has not changed. It appears that the nesting populations in South Carolina and Georgia may be declining while the Florida nesting population seems to be stable. However, NMFS is currently considering the reclassification of the Northern and Florida panhandle subpopulations as endangered (NMFS, 2004a). The loggerhead turtle recovery plans contain more current information and are incorporated by reference (NMFS and USFWS, 1991b and 1998e).

3.1.2.6 Olive Ridley Turtle

Olive ridley turtles are predominantly tropical and are more abundant in the Atlantic Ocean than in the Pacific Ocean. The olive ridley turtles form huge nesting aggregations (often known as "arribadas") at several beaches along the Mexican Pacific coast with the largest concentration at La Escobilla (NMFS, 2004a). In the non-reproductive stages, olive ridleys are migratory and tend to remain in the eastern Pacific pelagic habitats. Distribution is similar to that of the leatherbacks.

In 1978 the olive ridley turtle was listed as endangered for the Mexican nesting population and as threatened for all other populations. Since the listing, abundance has declined, and it has been recommended that the Western Atlantic population be reclassified as endangered (NMFS, 2004a). The olive ridley turtle recovery plan contains

more current information on each species and is incorporated by reference (NMFS and USFWS, 1998f).

3.1.3 Sea Birds

Sea birds' normal habitat and food source are the sea, whether they utilize coastal waters, offshore waters, or pelagic waters (Harrison, 1983). Birds of this definition include loons (Gaviiformes), grebes (Podicipediformes), albatrosses, fulmars, prions, petrels, shearwaters, storm-petrels, diving petrels (Procellariiformes), pelicans, boobies, gannets, cormorants, shags, frigatebirds, tropicbirds, anhingas (Pelecaniformes), shorebirds, skuas, jaegers, gulls, terns, auks, and puffins (Charadriiformes).

Table 3-3 lists the sea birds that are listed under the ESA. The *Environmental Assessment of Proposed Regulations to Govern Interactions between Marine Mammals and Commercial Fishing Operations, under Section 118 of the Marine Mammal Protection Act* (NMFS, 1995a) contains much data on sea birds, which are incorporated by reference.

**Table 3-3
ESA-listed Sea Birds**

Common Name	Scientific Name	Status*
Brown Pelican	<i>Pelecanus occidentalis</i>	E, R**
California Least Tern	<i>Sterna antillarum browni</i>	E
Hawaiian Dark-rumped Petrel	<i>Pterodroma phaeopygia sandwichensis</i>	E
Hawaiian Stilt	<i>Himantopus mexicanus knudseni</i>	E
Least Tern	<i>Sterna antillarum</i>	E
Newell's Townsend's Shearwater	<i>Puffinus auricularis newelli</i>	T
Roseate Tern	<i>Sterna dougallii dougallii</i>	E, T**
Short-tailed Albatross	<i>Phoebastria albatrus</i>	E

* E = endangered; T = threatened; C = candidate; R = recovered (delisted).
 ** Status assigned according to population.
 Sources: USFWS, 2004.

3.1.4 Anadromous and Marine Fishes

Table 3-4 shows all anadromous and marine fishes that are endangered species, threatened species, or candidate species for listing under the ESA. No catadromous fishes are listed or candidates for listing under the ESA.

Recovery plans exist for the shortnose and Gulf sturgeons and are incorporated by reference (NMFS 1998b; USFWS and Gulf States Marine Fisheries Commission, 1995).

Table 3-4
Endangered, Threatened, and Candidate Anadromous and Marine Fishes

Common Name	Scientific Name	Status*
Alabama Shad	<i>Alosa alabamae</i>	C
Atlantic Salmon	<i>Salmo salar</i>	E
Atlantic Sturgeon	<i>Acipenser oxyrinchus oxyrinchus</i>	C
Barndoor Skate	<i>Raja laevis</i>	C
Bocaccio	<i>Sebastes paucispinis</i>	C
Chinook Salmon	<i>Oncorhynchus tshawytscha</i>	E, T, C**
Chum Salmon	<i>Oncorhynchus keta</i>	T
Coho Salmon	<i>Oncorhynchus kisutch</i>	T, C**
Dusky Shark	<i>Carcharhinus obscurus</i>	C
Goliath Grouper	<i>Epinephelus itajara</i>	C
Green Sturgeon	<i>Acipenser medirostris</i>	C
Gulf Sturgeon	<i>Acipenser oxyrinchus desotoi</i>	T
Key Silverside	<i>Menidia conchorum</i>	C
Largetooth Sawfish	<i>Pristis perotteti</i>	C
Mangrove Rivulus	<i>Rivulus marmoratus</i>	C
Nassau Grouper	<i>Epinephelus striatus</i>	C
Night Shark	<i>Carcharhinus signatus</i>	C
Opossum Pipefish	<i>Microphis brachyurus</i>	C
Saltmarsh Topminnow	<i>Fundulus jenkinsi</i>	C
Sandtiger Shark	<i>Odontaspis Taurus</i>	C
Shortnose Sturgeon	<i>Acipenser brevirostrum</i>	E
Smalltooth Sawfish	<i>Pristis pectinata</i>	E
Sockeye Salmon	<i>Oncorhynchus nerka</i>	E, T, C**
Speckled Hind	<i>Epinephelus drummondhayi</i>	C
Steelhead Trout	<i>Oncorhynchus mykiss</i>	E, T, C**
Warsaw Grouper	<i>Epinephelus nigritus</i>	C
White Marlin	<i>Tetrapturus albidus</i>	C

* E = endangered; T = threatened; C = candidate.
** Status assigned according to population.
Sources: NMFS, 2004b.

3.2 Description of Active US Commercial Fisheries

The *Environmental Assessment of Proposed Regulations to Govern Interactions between Marine Mammals and Commercial Fishing Operations, under Section 118 of the Marine Mammal Protection Act* (NMFS, 1995a) provides substantial information on US commercial fisheries so the information in that EA is incorporated by reference. The draft 2003 SARs (NMFS, 2003c) and the 2003 LOF (NMFS, 2003b) include more recent data and are also incorporated by reference.

According to the 2003 LOF, of the 197 active US commercial fisheries, there are six fisheries in Category I, 34 in Category II, and 157 in Category III (see Table 3-5).

**Table 3-5
Classified Active US Commercial Fisheries**

Region	Category I	Category II	Category III
Atlantic	5	14	51
Pacific/Alaska*	1	20	106
Total	6	34	157
* While the SARs separate fisheries into Pacific and Alaska regions, the LOF combines the two regions. Therefore, Pacific and Alaska fisheries are combined in this table. Source: NMFS, 2003b.			

Chapter 4 analyzes only those fisheries that exceed the T_{ins} as calculated under each alternative; the estimated incidental mortality and serious injury data from the above-referenced reports for such fisheries appear in Chapter 4 along with the analysis.

3.3 TRTs and TRPs

To date, only the Atlantic Offshore Cetacean TRT has been convened and was later disbanded. It was formed to address take reduction of North Atlantic right whales, humpback whales, sperm whales, beaked whales, pilot whales, common dolphins, bottlenose dolphins, and spotted dolphins in the Atlantic pelagic driftnet, pair trawl, and pelagic longline fisheries. Since the TRT was convened in 1996, the driftnet fishery was closed, the pair trawl fishery remained inactive, and the longline fishery changed substantially to reduce other bycatch. Therefore, NMFS disbanded the TRT in 2001.

NMFS has formed five currently-operating TRTs: Pacific Offshore Cetacean TRT, Mid-Atlantic Harbor Porpoise TRT, Gulf of Maine Harbor Porpoise TRT, Atlantic Large Whale TRT, and Bottlenose Dolphin TRT. NMFS has implemented TRPs for each TRT except the Bottlenose Dolphin TRT; the agency is currently drafting a proposed rule to implement a Bottlenose Dolphin TRP.

NMFS also has plans to convene a TRT in 2005 to address incidental mortality and serious injury of marine mammals in the Atlantic pelagic longline fishery (primarily focusing on common dolphins and pilot whales) and has plans to convene a TRT in 2006 to address incidental mortality and serious injury of marine mammals in the Atlantic trawl fisheries. Both future TRTs are also part of the April 2003 settlement agreement (*Center for Biological Diversity, et al v. National Marine Fisheries Service*, Case No. C-02-3901-SC (N.D. Cal. 2003)).

3.3.1 Pacific Offshore Cetacean TRT

The Pacific Offshore Cetacean TRT was formed in February 1996 to reduce incidental mortality and serious injury of beaked whales, pilot whales, pygmy sperm whales, sperm whales, and humpback whales in the swordfish/shark drift gillnet fishery off the coasts of California and Oregon. The TRP was implemented on October 30, 1997. The plan has

three main requirements: pingers must be on all nets, nets must be set at a minimum of 36 feet below the water's surface, and vessel operators must attend educational workshops after notification from NMFS. A modification made on January 1, 1999 requires longer attachment lanyards to increase safety of pinger deployment. (NMFS, March 2004e)

3.3.2 Mid-Atlantic Harbor Porpoise TRT

The Mid-Atlantic Harbor Porpoise TRT, first convened in February 1997, addresses incidental mortality and serious injury of harbor porpoise in the mid-Atlantic coastal gillnet fishery. In December 1997, based on new bycatch and fishery data, NMFS integrated the Mid-Atlantic Harbor Porpoise TRT report and the Gulf of Maine Harbor Porpoise TRT report, resulting in one harbor porpoise TRP for the Atlantic coast. NMFS implemented the harbor porpoise TRP on January 1, 1999. The TRP consists of time and area closures unless gear meets certain specifications, some complete time and area closures that apply to any gillnet fishing, and required pingers on sink gillnets in certain times and areas. (NMFS, March 2004e)

3.3.3 Gulf of Maine Harbor Porpoise TRT

The Gulf of Maine Harbor Porpoise TRT first met in February 1996 to address incidental mortality and serious injury of the harbor porpoise in the Northeast sink gillnet fishery. In December 1997, based on new bycatch and fishery data, NMFS integrated the Mid-Atlantic Harbor Porpoise TRT report and the Gulf of Maine Harbor Porpoise TRT report, resulting in one harbor porpoise TRP for the Atlantic coast. NMFS implemented the harbor porpoise TRP on January 1, 1999. The TRP consists of time and area closures unless gear meets certain specifications, some complete time and area closures that apply to any gillnet fishing, and required pingers on sink gillnets in certain times and areas. (NMFS, March 2004e)

3.3.4 Atlantic Large Whale TRT

The Atlantic Large Whale TRT was established in August 1996 to design a TRP for North Atlantic right whales, humpback whales, and fin whales affected by the Southeastern US shark gillnet fishery, the Northeast/Mid-Atlantic lobster trap/pot fishery, the Mid-Atlantic coastal gillnet fishery, and the Northeast sink gillnet fishery. The TRP was first put into effect in 1997 and has been modified several times, most recently in August 2003. The TRP includes gear restrictions, research recommendations, time and area closures, outreach and education recommendations, and a disentanglement program. The TRT most recently met in February 2004. Currently, NMFS is preparing a draft environmental impact statement to analyze alternatives for gear modification and improved time and area management. (NMFS, 2004d)

3.3.5 Bottlenose Dolphin TRT

The Bottlenose Dolphin TRT was convened in November 2001 to address incidental mortality and serious injury of Western North Atlantic coastal bottlenose dolphins in the Mid-Atlantic and Southeast gillnet, beach seine, stop net, haul seine, and trap/pot fisheries. Most recently, the TRT met in April 2003 and submitted recommendations, on which NMFS is currently basing preparation of a proposed rule. The recommendations include temporal restrictions, proximity and gear-marking requirements, net length restrictions, and gear workshops. (NMFS, March 2004e)

4.0 ENVIRONMENTAL IMPACTS

The environmental impacts of all major Federal actions, including agency rules, must be considered prior to implementation to determine whether they would significantly affect the quality of the human environment. This chapter describes the anticipated direct, indirect, and cumulative environmental and socioeconomic impacts of the No Action and action alternatives. Although not a reasonable alternative, the No Action Alternative provides the baseline against which to compare the impacts of the proposed action.

This EA analyzes the impacts of several alternatives that define the ZMRG. Because the Federal action analyzed in this EA is rulemaking, it is difficult to predict how the rule will be applied. The TRPs will include measures designed for fisheries to achieve the ZMRG. Because those measures have not yet been designed, the impacts identified in this chapter may seem general in nature. However, it is important to note that TRPs would require their own NEPA analysis before being implemented. Therefore, specific impacts would be identified during the TRP NEPA processes according to the specific provisions of the TRP that would directly affect protected marine populations and US commercial fisheries.

4.1 Impacts on Protected Marine Populations

This section discusses the potential impacts of the alternatives on protected marine populations: sea turtles, sea birds, fishes, and marine mammals.

4.1.1 Sea Turtles, Sea Birds, and Salmonids and Other Protected Fishes

Under the No Action Alternative, the lack of a regulatory ZMRG definition could result in moderate, negative impacts to marine mammal stocks as discussed below, and this should result in even fewer negative, indirect impacts to sea turtles, sea birds, and salmonids and other protected fishes because the ZMRG does not address species other than marine mammals. Such negative, indirect impacts would be in the form of bycatch from commercial fishery operations. A lack of measures to protect marine mammals would not result in indirect bycatch reduction of other marine species.

Under each action alternative, potential impacts on sea turtles, sea birds, and salmonids and other protected fishes would be minor, indirect, and positive. To meet the long-term goal of reducing incidental mortality and serious injury of marine mammals, a specific TRP may require gear modifications or some other technique that may benefit bycatch reduction of these other marine species as well.

4.1.2 Marine Mammals

43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60
61
62
63
64
65
66
67

For the purposes of this EA, if data exist for marine mammals, the data are assumed to be reliable (unless specified in the SARs to be unreliable), and T_{ins} is calculated under each alternative. During implementation of the ZMRG provision in cases with unreliable estimates, NMFS may consider other measures to define the target level for such stocks.

Because some marine mammal stocks do not have a reliable abundance estimate (used to calculate N_{min}), T_{ins} cannot be calculated for such stocks under any alternative. Also, some stocks do not have incidental mortality estimates, which prevents calculation to determine whether incidental mortality and serious injury exceed T_{ins} . Stocks that lack N_{min} , mortality estimates, or both (see Table 4-1) have not been included in the analysis although several of them have experienced incidental mortality and serious injury. Therefore, it cannot be assumed that fisheries achieve ZMRG for such stocks under any alternative. Such stocks would be treated as experiencing incidental mortality and serious injury exceeding insignificant levels approaching zero until enough data are collected to estimate the N_{min} and mortality level. (Note: According to the SARs, some stocks are thought to have little or no interaction with fisheries. Such stocks are not included in Table 4-1.)

Of the 19 stocks with insufficient data, seven are in the Alaska region, five are in the Atlantic region, and seven are in the Pacific region. Only the fin whale, sperm whale, and Hawaiian monk seal stocks in Table 4-1 are endangered. There are no other known depleted or ESA-listed stocks in Table 4-1.

67
68
69
70

**Table 4-1
Marine Mammal Stocks with Insufficient Data to
Determine ZMRG Achievement***

Region	Species	Stock	Estimated Annual Fishery Mortality	N _{min}
Alaska	Bearded Seal	Alaska	1	Unavailable
Alaska	Fin Whale	Northeast Pacific	0.8	Unavailable
Alaska	Minke Whale	Alaska	0.3	Unavailable
Alaska	Pacific White-Sided Dolphin	Central North Pacific (CNP)	4	Outdated**
Alaska	Ribbon Seal	Alaska	1	Unavailable
Alaska	Sperm Whale	North Pacific	0.4	Unavailable
Alaska	Spotted Seal	Alaska	3	Unavailable
Atlantic	Bottlenose Dolphin	Gulf of Mexico Bay, Sound, & Estuarine	Unavailable***	3933
Atlantic	Gray Seal	Western North Atlantic (WNA)	131	Unavailable
Atlantic	Harp Seal	WNA	109	Unavailable
Atlantic	Hooded Seal	WNA	16	Unavailable
Atlantic	Spinner Dolphin	WNA	0.31	Unavailable
Pacific	Hawaiian Monk Seal	Hawaii	Unavailable	1378
Pacific	Killer Whale	Hawaii	Unavailable	Unavailable
Pacific	Melon-Headed Whale	Hawaii	Unavailable	81
Pacific	Pygmy Killer Whale	Hawaii	Unavailable	Unavailable
Pacific	Risso's Dolphin	Hawaii	Unavailable	Unavailable
Pacific	Rough-Toothed Dolphin	Hawaii	Unavailable	Unavailable
Pacific	Striped Dolphin	Hawaii	Unavailable	52

* This table excludes stocks that have an estimated mortality of zero regardless of an unavailable N_{min}.
 ** According to Wade and Angliss (1997), abundance estimates older than eight years should not be used in calculations. For this stock, N_{min} was 26,880 in 1993. Unless the population has decreased substantially, it is highly likely that this stock would experience a level of incidental mortality and serious injury less than T_{ins} under all alternatives.
 *** While no mortality estimates are available for this stock, stranding data indicate that incidental fishery interactions result in mortality and serious injury.
 Source: NMFS, 2003c.

71
72
73
74
75
76
77
78
79
80
81
82

4.1.2.1 Alternative 1: No Action Alternative

The No Action Alternative would not provide a regulatory definition of ZMRG. However, NMFS would continue to use the criterion of ten percent of a stock's PBR to evaluate whether incidental mortality and serious injury is at insignificant levels approaching a zero rate for purposes of the SARs, which are informational reports.

Without a defined ZMRG, it is possible that some marine mammal stocks may not be protected to the full extent as provided in Section 118 of the MMPA. NMFS must review and report to Congress on the progress of all commercial fisheries, by fishery, toward reducing incidental mortality and serious injury to ZMRG. NMFS cannot reasonably

83 conduct this review and report without a definition of ZMRG. The report could track
84 reductions in mortality, but it could not determine the progress of fisheries toward a
85 target level without a defined ZMRG. In addition, TRTs and NMFS would experience
86 difficulty in establishing the amount of incidental mortality and serious injury to reduce
87 in the long term without a defined ZMRG. This could result in moderate, negative
88 impacts to marine mammal stocks if TRTs decide that the long-term goal of reducing
89 incidental mortality and serious injury has been met based on various criteria chosen by
90 TRT members as opposed to a standard, regulatory definition of ZMRG; this may not
91 result in sufficient reductions. On the other hand, the No Action Alternative could also
92 result in overprotection if the ZMRG is interpreted as having a target equal to zero.

93
94 Although the No Action Alternative would not define ZMRG, the data describing
95 incidental mortality and serious injury for this alternative are identical to those for
96 Alternative 2 and are only analyzed in section 4.1.2.2. Although the No Action
97 Alternative would not have a formal T_{ins} , for the purposes of comparison of alternatives
98 in this EA, the calculation of T_{ins} would be the same for both alternatives as NMFS would
99 likely continue to use ten percent of PBR as the guideline for an undefined ZMRG under
100 the No Action Alternative. The only difference between the No Action Alternative and
101 Alternative 2 is that Alternative 2 would provide a regulatory definition of ZMRG thus
102 quantifying a TRP's long-term goal.

103 104 **Depleted and ESA-listed Stocks**

105
106 As mentioned above, analysis of effects on depleted and ESA-listed stocks under the No
107 Action Alternative would be the same as that under Alternative 2, with the exception that
108 the No Action Alternative would not result in a regulatory definition of ZMRG. The
109 detailed discussion follows in section 4.1.2.2.

110 111 **4.1.2.2 Alternative 2: Preferred Alternative**

112
113 Although similar to the No Action Alternative, Alternative 2 would have fewer adverse
114 effects and more positive impacts because the ZMRG would have a regulatory definition
115 and likely lead to greater reduction of incidental mortality and serious injury. The same
116 procedure would be used to determine which stocks would be under consideration for
117 convening TRTs.

118
119 Of all the action alternatives, Alternative 2 is protective of the greatest number of marine
120 mammal stocks (see Table 4-2); implementation of Alternative 2 would result in 34
121 stocks with incidental mortality and serious injury exceeding T_{ins} . Therefore, relative to
122 the other alternatives, Alternative 2 would have the greatest positive impacts by
123 indicating the need for the greatest reduction of incidental mortality and serious injury of
124 marine mammals that interact with commercial fisheries. Also, when compared to the
125 other alternatives, Alternative 2 is the most protective of endangered stocks because it
126 would allow endangered stocks only a one-percent recovery delay (see discussion of
127 recovery delay in Chapter 2 and see Table 2-1). Alternative 2, like Alternative 4, is more
128 protective of stocks of threatened, declining, or unknown status than Alternative 3.

129 Alternative 2 would result in substantial positive impacts to marine mammals, and NMFS
 130 has selected Alternative 2 as the preferred alternative.

131

132

133

134

135

Table 4-2
Summary: Marine Mammal Stocks with
Incidental Mortality and Serious Injury Exceeding T_{ins}

Region	Alternative 1: No Action ¹	Alternative 2	Alternative 3	Alternative 4
Alaska	5	5	1	4
Atlantic	14	14	11	13
Pacific	12	12	7	11
TOTAL	31	31	19	28

¹ For the purposes of analysis, calculations for the No Action Alternative are based on the interpretation of ZMRG as currently used in SARs (10% of PBR).
 Source: NMFS, 2003c.

136

137

138

139

140

141

142

143

144

145

146

147

148

149

150

A regulatory definition of ZMRG would facilitate TRP design because the TRTs would know that the specific long-term goal would be to reduce incidental mortality and serious injury to *less than or equal to ten percent of PBR*. Ambiguity concerning ZMRG would be dissolved. While this would not necessarily generate more resources for NMFS to convene TRTs, it would clarify which fisheries have met the ZMRG. This could result in substantial, positive impacts to marine mammal stocks if TRTs design TRPs that effectively meet the ZMRG.

Alaska Region

Under Alternative 2, five stocks in the Alaska region would experience incidental mortality and serious injury greater than T_{ins} as shown in Table 4-3.

150
151
152
153

Table 4-3
Marine Mammal Stocks in the Alaska Region with
Incidental Mortality and Serious Injury Exceeding T_{ins} under Alternative 2

Species	Stock	Estimated Annual Fishery Mortality	T_{ins}	PBR
Humpback whale	CNP	4.2	0.74	7.4
Humpback whale	Western North Pacific (WNP)	0.8	0.07	0.7
Killer whale	Eastern North Pacific (ENP) Northern Resident	1.4	0.72	7.2
Killer whale	ENP Transient	0.6	0.28	2.8
Steller Sea Lion	Western US	25.9	20.9	209
Source: NMFS, 2003c.				

154
155
156
157
158
159
160
161
162
163
164
165
166
167
168

Enough data exist for the Southeast Alaska feeding aggregation of humpbacks, which is part of the CNP stock, to be analyzed independently of the entire stock. NMFS is considering designating this feeding aggregation as a separate stock. Calculated independently of the entire stock, the feeding aggregation's PBR is 3.5. With an estimated annual fishery mortality of 2.2, the Southeast Alaska portion of the stock would experience incidental mortality and serious injury greater than 0.35, which is the aggregation's T_{ins} under Alternative 2.

Atlantic Region

Under Alternative 2, 14 stocks in the Atlantic region would experience incidental mortality and serious injury greater than T_{ins} as shown in Table 4-4.

168
169
170
171

Table 4-4
Marine Mammal Stocks in the Atlantic Region with
Incidental Mortality and Serious Injury Exceeding T_{ins} under Alternative 2

Species	Stock	Estimated Annual Fishery Mortality	T_{ins}	PBR
Atlantic White-Sided Dolphin	WNA	102	36.4	364
Bottlenose Dolphin	Western Gulf of Mexico	13	2.9	29
Bottlenose Dolphin	WNA (coastal)*	257	15.16	151.6
Bottlenose Dolphin	WNA (offshore)	27	24.9	249
Common Dolphin	WNA	190	22.7	227
False Killer Whale	Northern Gulf of Mexico Oceanic	1	0.59	5.9
Fin Whale	WNA	0.6	0.47	4.7
Harbor Porpoise	Gulf of Maine/Bay of Fundy (after TRP)	318	74.7	747
Harbor Seal	WNA	955	549.3	5493
Humpback Whale	Gulf of Maine	1.6	0.13	1.3
North Atlantic Right Whale**	WNA	1.2	0	0
Pilot Whales (long- and short-finned)***	WNA	221	10.8	108
Pygmy Sperm Whale	WNA	6	0.37	3.7
Risso's Dolphin	WNA	51	22	220

* The WNA coastal stock of bottlenose dolphins is described in terms of several management units in the SARs. Therefore, for the purposes of this EA, the winter estimates for the management units were combined to analyze the entire stock.
** Due to recent population decline of this endangered species, its PBR and T_{ins} are zero.
*** Species-specific estimates are not available as mortality data do not distinguish between the two species.
Calculations shown represent the entire genus of the WNA.
Source: NMFS, 2003c.

172
173
174
175
176
177
178

Pacific Region

Under Alternative 2, 12 stocks in the Pacific region would experience incidental mortality and serious injury greater than T_{ins} as shown in Table 4-5.

178
179
180
181

Table 4-5
Marine Mammal Stocks in the Pacific Region with
Incidental Mortality and Serious Injury Exceeding T_{ins} under Alternative 2

Species	Stock	Estimated Annual Fishery Mortality	T_{ins}	PBR
California Sea Lion	US	1476	833.3	8333
False Killer Whale	Hawaii	4.6-6.9*	0.08	0.8
Fin Whale	California/Oregon/Washington (CA/OR/WA)	1	0.51	5.1
Harbor Porpoise	Monterey Bay	3	1.1	11
Harbor Porpoise	Morro Bay	4.8	0.7	7
Harbor Porpoise	Washington Inland Waters	15.2	2	20
Harbor Seal	California	433	154.3	1543
Humpback Whale	ENP	≥ 0.8	0.135	1.35
Northern Right-Whale Dolphin	CA/OR/WA	23	16.4	164
Short-Finned Pilot Whale	CA/OR/WA	1.2	0.119	1.19
Short-Finned Pilot Whale	Hawaiian	0-2.3*	1.3	13
Sperm Whale	CA/OR/WA	1	0.18	1.8

* The estimated mortality for these species is a range with the high end including unidentified cetaceans in the area that were incidentally killed or seriously injured.
Source: NMFS, 2003c.

182
183
184
185
186
187
188
189
190
191
192
193
194
195
196
197
198
199
200
201
202

Depleted and ESA-listed Stocks

Alternative 2 is the only action alternative that would protect stocks to different degrees according to their status as demonstrated by different recovery delays (see Chapter 2 discussion and Table 2-1). While Alternative 2 uses ten percent of PBR as the T_{ins} for all stocks, F_r (of the PBR equation) can vary for each stock according to stock status. As a stock's population status declines, the stock's F_r decreases, thus making T_{ins} lower in value. Therefore, Alternative 2 is the only action alternative that would give increased protection to endangered stocks. Alternative 2 would allow a recovery delay (using the assumption that other causes of recovery delay are negligible; see discussion in Chapter 2) of less than or equal to one percent for endangered stocks (see Table 2-1), which is the shortest allowable delay in recovery for any stock under any alternative. Regarding protection of threatened stocks, depleted stocks, or stocks of unknown status, Alternative 2, like Alternative 4, would be more protective than Alternative 3. Finally, Alternative 2, like Alternative 3, would be less protective of healthy stocks than Alternative 4.

Implementation of Alternative 2 would result in the following ten depleted or ESA-listed stocks with incidental mortality and serious injury exceeding T_{ins} :

- 202 • *Endangered* humpback whale (CNP, WNP, Gulf of Maine, and ENP stocks).
- 203 • *Endangered* Steller sea lion (Western US stock).
- 204 • *Depleted* bottlenose dolphin (WNA coastal stock).
- 205 • *Endangered* fin whale (WNA and CA/OR/WA stocks).
- 206 • *Endangered* North Atlantic right whale (WNA stock).
- 207 • *Endangered* sperm whale (CA/OR/WA stock).

208

209 Excluding the endangered species in Table 4-1 as discussed in section 4.1, other depleted
 210 or ESA-listed stocks (see section 3.1.1) are not known to interact with US commercial
 211 fisheries.

212

213 **4.1.2.3 Alternative 3**

214

215 Of all the alternatives, Alternative 3 protects the fewest marine mammal stocks (see
 216 Table 4-2); implementation of Alternative 3 would result in 22 stocks with incidental
 217 mortality and serious injury exceeding T_{ins} . Therefore, Alternative 3 would have the
 218 fewest positive impacts on the reduction of incidental mortality and serious injury of
 219 marine mammals that interact with commercial fisheries.

220

221 A regulatory definition of ZMRG would facilitate TRP design because the TRTs would
 222 know that the specific long-term goal would be to reduce incidental mortality and serious
 223 injury to *a level causing less than a ten percent delay in recovery* (see Table 2-1).
 224 Ambiguity concerning ZMRG would be dissolved. While this would not necessarily
 225 generate more resources for NMFS to convene TRTs, it would clarify which fisheries
 226 have met the ZMRG. This could result in moderate, positive impacts to marine mammal
 227 stocks if TRTs design a TRP that effectively meets the ZMRG. However, under
 228 Alternative 3, ZMRG would be protective of fewer stocks than the current interpretation
 229 (ten percent of PBR) so it is more likely that Alternative 3 would result in moderate,
 230 negative impacts to stocks by requiring fewer reductions in incidental mortality and
 231 serious injury than the other alternatives. Existing TRTs would have less incentive to be
 232 as protective of marine mammals.

233

234 **Alaska Region**

235

236 Under Alternative 3, one stock in the Alaska region would have incidental mortality and
 237 serious injury greater than T_{ins} as shown in Table 4-6.

238

239

240

241

242

**Table 4-6
 Marine Mammal Stock in the Alaska Region with
 Incidental Mortality and Serious Injury Exceeding T_{ins} under Alternative 3**

Species	Stock	Estimated Annual Fishery Mortality	T_{ins}	PBR
Humpback whale	WNP	0.8	0.734	0.7

Source: NMFS, 2003c.

243

244 Enough data exist for the Southeast Alaska feeding aggregation of humpbacks, which is
 245 part of the CNP stock, to be analyzed independently of the entire stock. NMFS is
 246 considering designating this feeding aggregation as a separate stock. Calculated
 247 independently of the entire stock, the feeding aggregation's PBR is 3.5. With an
 248 estimated annual fishery mortality of 2.2, the Southeast Alaska portion of the stock would
 249 experience incidental mortality and serious injury greater than 1.736, which is the
 250 aggregation's T_{ins} under Alternative 3.

251

252 Atlantic Region

253

254 Under Alternative 3, 11 stocks in the Atlantic region would have incidental mortality and
 255 serious injury greater than T_{ins} as shown in Table 4-7.

256

257

258

259

260

Table 4-7
Marine Mammal Stocks in the Atlantic Region with
Incidental Mortality and Serious Injury Exceeding T_{ins} under Alternative 3

Species	Stock	Estimated Annual Fishery Mortality	T_{ins}	PBR
Atlantic White-Sided Dolphin	WNA	102	75.81	364
Bottlenose Dolphin	Western Gulf of Mexico	13	5.876	29
Bottlenose Dolphin	WNA (coastal)*	257	30.27	151.6
Common Dolphin	WNA	190	47.31	227
Harbor Porpoise	Gulf of Maine/Bay of Fundy (after TRP)	318	149.39	747
Harbor Seal	WNA	955	549.276	5493
Humpback Whale	Gulf of Maine	1.6	1.294	1.3
North Atlantic Right Whale**	WNA	1.2	0	0
Pilot Whales (long- and short-finned)***	WNA	221	22.686	108
Pygmy Sperm Whale	WNA	6	0.746	3.7
Risso's Dolphin	WNA	51	45.832	220

* The WNA coastal stock of bottlenose dolphins is described in terms of several management units in the SARs. Therefore, for the purposes of this EA, the winter estimates for the management units were combined to analyze the entire stock.
 ** Due to recent population decline of this endangered species, the PBR and T_{ins} are zero.
 *** Species-specific estimates are not available as mortality data do not distinguish between the two species. Calculations shown represent the entire genus of the WNA.
 Source: NMFS, 2003c.

261

262 Pacific Region

263

264 Under Alternative 3, seven stocks in the Pacific region would have incidental mortality
 265 and serious injury greater than T_{ins} as shown in Table 4-8.

266

267

267
268
269
270

Table 4-8
Marine Mammal Stocks in the Pacific Region with
Incidental Mortality and Serious Injury Exceeding T_{ins} under Alternative 3

Species	Stock	Estimated Annual Fishery Mortality	T_{ins}	PBR
California Sea Lion	US	1476	833.286	8333
False Killer Whale	Hawaii	4.6-6.9*	0.166	0.8
Harbor Porpoise	Monterey Bay	3	2.284	11
Harbor Porpoise	Morro Bay	4.8	1.338	7
Harbor Porpoise	Washington Inland Waters	15.2	5.09	20
Harbor Seal	California	433	154.32	1543
Short-Finned Pilot Whale	CA/OR/WA	1.2	0.298	1.19

* The estimated mortality for this species is a range with the high end including unidentified cetaceans in the area that were incidentally killed or seriously injured.
Source: NMFS, 2003c.

271
272
273

Depleted and ESA-listed Stocks

274
275
276
277
278
279
280
281

Alternative 3 would protect all stocks to the same degree relative to recovery delay caused by incidental mortality and serious injury from commercial fisheries (see Chapter 2 for discussion of recovery delay); there would be no preferential protection for depleted or ESA-listed stocks relative to healthy, robust stocks. Healthy, depleted, threatened, and endangered stocks would experience no more than a ten-percent delay in recovery resulting from interactions with commercial fisheries. It would be the least protective alternative of all stocks, generally; however, it would be equally as protective of healthy stocks as Alternative 2.

282
283
284
285

Implementation of Alternative 3 would result in incidental mortality and serious injury exceeding T_{ins} for the following four depleted or ESA-listed stocks:

286
287
288

- *Endangered* humpback whale (WNP and Gulf of Maine stocks).
- *Depleted* bottlenose dolphin (WNA coastal stock).
- *Endangered* North Atlantic right whale (WNA stock).

289
290
291
292
293

Excluding the endangered species in Table 4-1 as discussed in section 4.1, other depleted or ESA-listed stocks (see section 3.1.1) are not known to interact with US commercial fisheries.

294
295

4.1.2.4 Alternative 4

296
297
298
299
300
301
302

Alternative 4 is slightly less protective of marine mammals than Alternative 2 and moderately more protective than Alternative 3 (see Table 4-2); implementation of Alternative 4 would result in 31 stocks with incidental mortality and serious injury exceeding T_{ins} . Therefore, Alternative 4 would have moderate, positive impacts on the reduction of incidental mortality and serious injury of marine mammals that interact with commercial fisheries.

303 A regulatory definition of ZMRG would facilitate TRP design because the TRTs would
 304 know that the specific long-term goal would be to reduce incidental mortality and serious
 305 injury to *a level causing less than a five percent delay in recovery* (see Table 2-1).
 306 Ambiguity concerning ZMRG would be dissolved. While this would not generate more
 307 resources for NMFS to convene TRTs, it would clarify which stocks have met the
 308 ZMRG. This could result in substantial, positive impacts to marine mammal stocks if
 309 TRTs design a TRP that effectively meets the ZMRG.

310
 311 However, generally under Alternative 4, ZMRG would be protective of slightly fewer
 312 stocks than the current interpretation (ten percent of PBR) so it is more likely that
 313 Alternative 4 would result in minor, negative impacts to stocks by requiring fewer efforts
 314 to reduce incidental mortality and serious injury. Under Alternative 4, existing TRTs
 315 would have less incentive than under Alternative 2 to be as protective of marine
 316 mammals. An exception to this generality is that Alternative 4 is more protective of
 317 healthy, robust stocks than the other alternatives. For example, under Alternative 4 the
 318 T_{ins} for the healthy, robust California sea lion stock is about half the value of that under
 319 the other alternatives.

320

321 Alaska Region

322

323 Under Alternative 4, four stocks in the Alaska region would have incidental mortality and
 324 serious injury greater than T_{ins} as shown in Table 4-9.

325

326

327

328

329

Table 4-9
Marine Mammal Stocks in the Alaska Region with
Incidental Mortality and Serious Injury Exceeding T_{ins} under Alternative 4

Species	Stock	Estimated Annual Fishery Mortality	T_{ins}	PBR
Humpback whale	CNP	4.2	3.698	7.4
Humpback whale	WNP	0.8	0.367	0.7
Killer whale	ENP Northern Resident	1.4	0.723	7.2
Killer whale	ENP Transient	0.6	0.346	2.8

Source: NMFS, 2003c.

330

331 Enough data exist for the Southeast Alaska feeding aggregation of humpbacks, which is
 332 part of the CNP stock, to be analyzed independently of the entire stock. NMFS is
 333 considering designating this feeding aggregation as a separate stock. Calculated
 334 independently of the entire stock, the feeding aggregation's PBR is 3.5. With an
 335 estimated annual fishery mortality of 2.2, the Southeast Alaska portion of the stock would
 336 experience incidental mortality and serious injury greater than 0.868, which is the
 337 aggregation's T_{ins} under Alternative 4.

338

339

339 **Atlantic Region**

340

341 Under Alternative 4, 13 stocks in the Atlantic region would have incidental mortality and
 342 serious injury greater than T_{ins} as shown in Table 4-10.

343

344

345

346

347

Table 4-10
Marine Mammal Stocks in the Atlantic Region with
Incidental Mortality and Serious Injury Exceeding T_{ins} under Alternative 4

Species	Stock	Estimated Annual Fishery Mortality	T_{ins}	PBR
Atlantic White-Sided Dolphin	WNA	102	37.904	364
Bottlenose Dolphin	Western Gulf of Mexico	13	2.938	29
Bottlenose Dolphin	WNA (coastal)*	257	15.14	151.6
Bottlenose Dolphin	WNA (offshore)	27	24.897	249
Common Dolphin	WNA	190	23.655	227
False Killer Whale	Northern Gulf of Mexico Oceanic	1	0.587	5.9
Harbor Porpoise	Gulf of Maine/Bay of Fundy (after TRP)	318	74.695	747
Harbor Seal	WNA	955	274.638	5493
Humpback Whale	Gulf of Maine	1.6	0.647	1.3
North Atlantic Right Whale**	WNA	1.2	0	0
Pilot Whales (long- and short-finned)***	WNA	221	11.343	108
Pygmy Sperm Whale	WNA	6	0.373	3.7
Risso's Dolphin	WNA	51	22.916	220

* The WNA coastal stock of bottlenose dolphins is described in terms of several management units in the SARs. Therefore, for the purposes of this EA, the winter estimates for the management units were combined to analyze the entire stock.
 ** Due to recent population decline of this endangered species, the PBR and T_{ins} are zero.
 *** Species-specific estimates are not available as mortality data do not distinguish between the two species. Calculations shown represent the entire genus of the WNA.
 Source: NMFS, 2003c.

348

349

350

351 Under Alternative 4, 11 stocks in the Pacific region would have incidental mortality and
 352 serious injury greater than T_{ins} as shown in Table 4-11.

353

354

354
355
356
357

Table 4-11
Marine Mammal Stocks in the Pacific Region with
Incidental Mortality and Serious Injury Exceeding T_{ins} under Alternative 4.

Species	Stock	Estimated Annual Fishery Mortality	T_{ins}	PBR
California Sea Lion	US	1476	416.643	8333
False Killer Whale	Hawaii	4.6-6.9	0.083	0.8
Harbor Porpoise	Monterey Bay	3	1.142	11
Harbor Porpoise	Morro Bay	4.8	0.669	7
Harbor Porpoise	Washington Inland Waters	15.2	2.545	20
Harbor Seal	California	433	77.16	1543
Humpback Whale	Eastern North Pacific	≥ 0.8	0.681	1.35
Northern Right-Whale Dolphin	CA/OR/WA	23	16.417	164
Short-Finned Pilot Whale	CA/OR/WA	1.2	0.149	1.19
Short-Finned Pilot Whale	Hawaiian	0-2.3*	1.313	13
Sperm Whale	CA/OR/WA	1	0.885	1.8

* The estimated mortality for these species is a range with the high end including unidentified cetaceans in the area that were incidentally killed or seriously injured.
Source: NMFS, 2003c.

358

359

Depleted and ESA-listed Stocks

360

361

362

363

364

365

366

367

368

369

Alternative 4 would protect all stocks to the same degree relative to recovery delay caused by incidental mortality and serious injury from commercial fisheries (see Chapter 2 for discussion of recovery delay); there would be no preferential protection for depleted or ESA-listed stocks relative to healthy, robust stocks. Healthy, depleted, threatened, and endangered stocks would experience no more than a five-percent delay in recovery resulting from interactions with commercial fisheries. It would be the most protective alternative of all stocks with the exception of endangered stocks, which would be most protected by Alternative 2.

370

371

372

Implementation of Alternative 4 would result in incidental mortality and serious injury exceeding T_{ins} for the following seven depleted or ESA-listed stocks:

373

374

375

376

377

- *Endangered* humpback whale (CNP, WNP, Gulf of Maine, and ENP stocks).
- *Depleted* bottlenose dolphin (WNA coastal stock).
- *Endangered* North Atlantic right whale (WNA stock).
- *Endangered* sperm whale (CA/OR/WA stock).

378

379

380

381

Excluding the endangered species in Table 4-1 as discussed in section 4.1, other depleted or ESA-listed stocks (see section 3.1.1) are not known to interact with US commercial fisheries.

4.2 Impacts on US Commercial Fisheries

381
382
383
384
385
386
387
388
389
390
391
392
393
394
395
396
397
398
399
400
401
402
403
404
405
406
407
408

This section analyzes the impacts of the alternatives on active US commercial fisheries. Because the TRP provisions cannot be predicted, no data exist to quantitatively describe the socioeconomic impacts of each alternative on fisheries. Therefore, this section consists of mostly qualitative socioeconomic analysis. Also, this section only analyzes commercial fisheries that would fail to meet the ZMRG for various stocks under each alternative. Although not mentioned in this EA, other fisheries are also responsible for incidental mortality and serious injury of marine mammals; however, their levels of incidental mortality and serious injury are considered insignificant (less than or equal to T_{ins}) under each alternative.

Because some marine mammal stocks do not have a reliable abundance estimate (used to calculate N_{min}), T_{ins} cannot be calculated for such stocks under any alternative. Also, some fisheries lack incidental mortality estimates for stocks with which they interact, which prevents calculation to determine whether incidental mortality and serious injury exceed T_{ins} . Stocks that lack N_{min} , mortality estimates, or both have not been included in the analysis although several of them have experienced incidental mortality and serious injury by various fisheries (see Table 4-12; it is probable that other unidentified commercial fisheries, not listed in the table, are also responsible for incidental interactions with marine mammals.). Therefore, it cannot be assumed that such fisheries achieve the ZMRG under any alternative. However, these fisheries may still be categorized in the LOF based on: fishing techniques, gear used, methods to deter marine mammal, target species, seasons and areas fished, qualitative data from logbooks or fisher reports, stranding data, and the species and distribution of marine mammals in the area.

408
409
410
411

Table 4-12
Commercial Fisheries with Insufficient Species-Specific Data to
Determine ZMRG Achievement

Region	Fishery	Category	Species (Stock)	Estimated Annual Fishery Mortality	N _{min}
Alaska	Bering Sea/Aleutian Islands (BSAI) Groundfish Trawl	3	Bearded Seal (Alaska)	0.6	Unavailable
			Fin Whale (Northeast Pacific)	0.6	Unavailable
			Minke Whale (Alaska)	0.3	Unavailable
			Ribbon Seal (Alaska)	0.2	Unavailable
			Spotted Seal (Alaska)	1	Unavailable
Alaska	BSAI Groundfish Longline	3	Pacific White-Sided Dolphin (CNP)	0.8	Outdated*
Alaska	Bristol Bay Salmon Drift Gillnet	2	Pacific White-Sided Dolphin (CNP)	≥ 0.75	Outdated*
			Spotted Seal (Alaska)	≥ 1.5	Unavailable
Alaska	Prince William Sound Salmon Drift Gillnet	2	Pacific White-Sided Dolphin (CNP)	≥ 1.25	Outdated*
Alaska	Southeast Alaska Salmon Drift Gillnet	2	Pacific White-Sided Dolphin (CNP)	≥ 0.25	Outdated*
Alaska	Gulf of Alaska Groundfish Longline	3	Sperm Whale (North Pacific)	0.4	Unavailable
Atlantic	Gulf of Mexico Gillnet**	2	Bottlenose Dolphin (Gulf of Mexico Bay, Sound, & Estuarine)	Unavailable	3933
Atlantic	Northeast Sink Gillnet	1	Gray Seal (WNA)	131	Unavailable
			Harp Seal (WNA)	96	Unavailable
			Hooded Seal (WNA)	16	Unavailable
Atlantic	Mid-Atlantic Coastal Gillnet	1	Harp Seal (WNA)	3	Unavailable
Atlantic	North Atlantic Bottom Trawl	3	Harp Seal (WNA)	10	Unavailable
Atlantic	Northeast Drift Gillnet	2	Spinner Dolphin (WNA)	0.31	Unavailable
Pacific	Hawaiian Gillnet***	3	Killer Whale (Hawaii)	Unavailable	Unavailable
			Risso's Dolphin (Hawaii)	Unavailable	Unavailable
			Melon-Headed Whale (Hawaii)	Unavailable	81
			Pygmy Killer Whale (Hawaii)	Unavailable	Unavailable
			Rough-Toothed Dolphin (Hawaii)	Unavailable	Unavailable
			Striped Dolphin (Hawaii)	Unavailable	52

Region	Fishery	Category	Species (Stock)	Estimated Annual Fishery Mortality	N _{min}
Pacific	Hawaiian Pelagic Longline***	3	Killer Whale (Hawaii)	Unavailable	Unavailable
			Risso's Dolphin (Hawaii)	Unavailable	Unavailable
			Melon-Headed Whale (Hawaii)	Unavailable	81
			Pygmy Killer Whale (Hawaii)	Unavailable	Unavailable
			Rough-Toothed Dolphin (Hawaii)	Unavailable	Unavailable
			Striped Dolphin (Hawaii)	Unavailable	52
			Hawaiian Monk Seal (Hawaii)	Unavailable	1378
Pacific	Northwest Hawaiian Deep Sea Bottomfish***	3	Killer Whale (Hawaii)	Unavailable	Unavailable
			Melon-Headed Whale (Hawaii)	Unavailable	81
			Pygmy Killer Whale (Hawaii)	Unavailable	Unavailable
			Risso's Dolphin (Hawaii)	Unavailable	Unavailable
			Rough-Toothed Dolphin (Hawaii)	Unavailable	Unavailable
			Striped Dolphin (Hawaii)	Unavailable	52
			Hawaiian Monk Seal (Hawaii)	Unavailable	1378

* According to Wade and Angliss (1997), abundance estimates older than eight years should not be used in calculations. For this stock, N_{min} was 26,880 in 1993. Unless the population has decreased substantially, it is likely that this stock would experience a level of incidental mortality and serious injury less than T_{ins} under all alternatives.
 ** While no mortality estimates are available, stranding data indicate that incidental interactions with the Gulf of Mexico gillnet fisheries result in mortality and serious injury.
 *** While no mortality data exist, it is possible that this fishery is responsible for incidental mortality and serious injury because interactions between marine mammals and these fisheries have been observed.
 Sources: NMFS, 2003b & 2003c.

412

413 Regarding the 19 stocks with insufficient data to determine whether ZMRG has been met,
 414 14 commercial fisheries are responsible or likely responsible for incidental interactions.
 415 Six are in the Alaska region, five are in the Atlantic region, and three are in the Pacific
 416 region (concentrated in the Hawaiian area). While the Gulf of Mexico gillnet, Hawaiian
 417 gillnet, Hawaiian pelagic longline, and Northwest Hawaiian deep sea bottomfish fisheries
 418 do not have data linking them directly to incidental mortality or serious injury of marine
 419 mammals, stranding data and observation of marine mammal interactions indicate that
 420 they are probably responsible for interactions with the stocks listed accordingly in Table
 421 4-12. For the fisheries that are known to be responsible for marine mammal incidental
 422 mortality and serious injury, it is not known whether these fisheries meet the ZMRG
 423 because there is no available N_{min} for those stocks. Therefore, T_{ins} cannot be calculated
 424 for those stocks.

425

426 Under each alternative, the existing TRTs would continue meeting. All existing TRTs
 427 address stocks that do not meet the ZMRG according to T_{ins} as calculated under each

428 alternative. In other words, the fisheries that are the foci of current TRTs would not meet
429 ZMRG regardless of which alternative is implemented. Under the action alternatives,
430 which define ZMRG, the TRT would be required to include measures in the TRP to
431 achieve ZMRG.

432

433 Under the No Action Alternative and Alternative 2, the fishery classification scheme
434 would not change, and there would be no impacts on the process to produce the annual
435 LOF. If Alternatives 3 or 4 were implemented, a new fishery classification scheme
436 would be necessary as the triggers to categorize fisheries would no longer correspond
437 with existing criteria. For the purposes of this analysis and because NMFS has identified
438 Alternative 2 as the preferred alternative, a potential new fishery classification scheme
439 will not be analyzed in this EA.

440

441

442 **4.2.1 Alternative 1: No Action Alternative**

443

444 Without a regulatory definition of ZMRG, TRTs would continue not to be able to
445 properly quantify the long-term goal (achieving ZMRG) for a stock's reduction in
446 incidental mortality and serious injury because no target for reduction would exist. There
447 would be no basis for determining when a fishery no longer has to reduce incidental
448 mortality and serious injury. This would perpetuate the current difficulty in determining
449 when TRTs may be terminated because the TRT would lack adequate regulatory
450 guidance to create a TRP that reduces incidental mortality and serious injury enough to
451 achieve the ZMRG. Such ambiguity may stifle fishermen's incentives to modify gear or
452 fishing practices to reduce bycatch and interactions with marine mammals. Such
453 ambiguity may also unnecessarily extend the TRT process, which could cost participants
454 time and money.

455

456 The No Action Alternative would not likely result in any direct, socioeconomic impacts
457 on US commercial fisheries. However, the possibility would exist that a TRT may
458 interpret ZMRG as having a target equal to zero, which could result in potential, minor
459 socioeconomic impacts. Under the No Action Alternative, all existing TRTs would
460 continue to meet as they currently do. The No Action Alternative would not change the
461 TRT process as it currently exists, and therefore, would not give the TRTs sufficient
462 guidance (no specific target) regarding achievement of their long-term goal as provided
463 in Section 118(f) of the MMPA.

464

465 However, potential minor, indirect, negative and positive, socioeconomic impacts could
466 result, although unlikely, from the fact that the ZMRG would remain undefined. Without
467 a ZMRG definition, TRTs have no quantified long-term goal for the TRP. These minor,
468 indirect socioeconomic impacts relate to opportunity costs and to direct costs resulting
469 from potential management measures included in a TRP. Opportunity costs apply to the
470 TRT participants and directly correlate with the length of the TRT process. Generally,
471 the opportunity costs are lost fishing time and potential income during TRT meetings.
472 Because NMFS does not pay the TRT participants, no financial compensation would
473 offset these opportunity costs. Negative impacts may occur if the ambiguity causes a

474 TRT to meet for a longer time than necessary. Positive impacts may occur if the
 475 ambiguity causes a TRT to meet for a shorter time period; however, such positive
 476 impacts could result in less reduction of incidental mortality and serious injury, which is
 477 a negative ecological impact.

478
 479 The fishery as a whole may have fewer negative socioeconomic impacts under the No
 480 Action Alternatives than under the action alternatives due to the possibility that less-
 481 stringent measures would be implemented in a TRP without a defined ZMRG. Less-
 482 stringent measures would likely result in fewer direct costs to the fishermen, depending
 483 on the provisions of the TRP. Therefore, the No Action Alternative is likely to have
 484 fewer negative socioeconomic impacts on all fishery participants than the action
 485 alternatives. However, such results may cause less reduction of incidental mortality and
 486 serious injury for marine mammals, which would be a negative ecological impact.

487
 488 Like in section 4.1.1, data for the No Action Alternative are identical to those for
 489 Alternative 2 and are analyzed in section 4.2.2.

490

491

492 4.2.2 Alternative 2: Preferred Alternative

493

494 As the most conservative alternative, Alternative 2 would result in the greatest number of
 495 fisheries exceeding insignificant levels of mortality and serious injury (see Table 4-13).
 496 Therefore, Alternative 2 would result in the greatest number of fisheries requiring
 497 reduction of incidental mortality and serious injury.

498

499

500

501

502

Table 4-13
Summary: Commercial Fisheries with
Incidental Mortality and Serious Injury Exceeding T_{ins}

Region	Alternative 1: No Action*	Alternative 2	Alternative 3	Alternative 4
Alaska	4	4	0	3
Atlantic	8	8	5	6
Pacific	6	6	3	4
TOTAL	18	18	8	13

For the purposes of analysis, calculations for the No Action Alternative are based on the interpretation of ZMRG as currently used in SARs (10% of PBR).
 Sources: NMFS, 2003b & 2003c.

503

504 Because Alternative 2 would affect the greatest number of fisheries and may result in the
 505 most-stringent measures in TRPs, it would have the largest number of potential, minor,
 506 direct and indirect, negative impacts on fishery socioeconomics. Impacts on fishermen
 507 are expected to be minor because they are represented on the TRT, and the TRT would
 508 take into consideration economic feasibility of the entire fishery when designing a TRP.
 509 Also, because Alternative 2 is protective of the most marine mammal stocks and most
 510 protective of endangered species, more effort and more-stringent measures may be
 511 required to achieve the long-term goal of TRPs under Alternative 2 than under the other
 512 alternatives. Indirect, socioeconomic impacts relate to opportunity costs, such as lost
 513 fishing time and increased fishing restrictions. Opportunity costs to the TRT participants

514 directly correlate with the length of the TRT process. Generally, the opportunity costs
 515 are lost fishing time and potential income while the TRT meets. Because NMFS does not
 516 pay the TRT participants, no financial compensation would offset these opportunity
 517 costs.

518
 519 The costs to all fishery participants would result from potential TRP measures, such as
 520 time and area closures and gear modification or replacement, which would reduce their
 521 fishing effort and likely result in direct costs to the fishermen. Such direct costs could
 522 include gear replacement and fuel to get to new fishing areas if some are closed.
 523 Alternative 2 would impose more potential costs on TRT participants than any of the
 524 other alternatives because a greater number of fisheries would be subject to the TRT
 525 process (see Table 4-13), and because Alternative 2 is the most biologically conservative
 526 alternative, it could result in the most-stringent measures in TRPs.

527

528 4.2.2.1 Alaska Region

529

530 Under Alternative 2, four commercial fisheries in the Alaska region would not achieve
 531 the ZMRG. Of the four fisheries, three would not meet the ZMRG for one stock each,
 532 and one would not meet the ZMRG for two different stocks (see Table 4-14).

533

534

535

536

537

Table 4-14
Commercial Fisheries in the Alaska Region with
Incidental Mortality and Serious Injury Exceeding T_{ins} under Alternative 2

Fishery	Category	Species (Stock)	Estimated Annual Mortality	T_{ins}	PBR
Unknown (includes Hawaiian area)	N/A*	Humpback whale (CNP)	2.6	0.74	7.4
BSAI Groundfish Trawl	3	Humpback whale (WNP)	0.6	0.07	0.7
		Killer whale (ENP Transient)	0.4	0.28	2.8
BSAI Groundfish Longline	3	Killer whale (ENP Northern Resident)	0.8	0.72	7.2
Unknown Bering Sea fishery	N/A*	Humpback whale (WNP)	≥ 0.2	0.07	0.7

* N/A = not applicable. Because the fishery is unknown, it cannot be categorized.
 Sources: NMFS, 2003b & 2003c.

538

539

540

541 4.2.2.2 Atlantic Region

542 Under Alternative 2, eight commercial fisheries in the Atlantic region would not achieve
 543 the ZMRG. Of the eight fisheries, five would not meet the ZMRG for one stock each,
 544 one would not meet the ZMRG for two stocks, one would not meet the ZMRG for three
 545 stocks, and one would not meet the ZMRG for five stocks (see Table 4-15).

546

546
547
548
549

Table 4-15
Commercial Fisheries in the Atlantic Region with
Incidental Mortality and Serious Injury Exceeding T_{ins} under Alternative 2

Fishery	Category	Species (Stock)	Estimated Annual Mortality	T _{ins}	PBR
Atlantic Ocean, Caribbean, Gulf of Mexico Large Pelagics Longline	1	Risso's Dolphin (WNA)	48	22	220
Northeast/Mid-Atlantic American Lobster Trap/Pot	1	North Atlantic Right Whale (WNA)	> 0	0	0
Northeast Sink Gillnet	1	Atlantic White-Sided Dolphin (WNA)	59	36.4	364
		Bottlenose Dolphin (WNA offshore)	26	24.9	249
		Common Dolphin (WNA)	29	22.7	227
		Harbor Porpoise (after TRP) (Gulf of Maine/Bay of Fundy)	277	74.7	747
		Harbor Seal (WNA)	953	549.3	5493
Mid-Atlantic Coastal Gillnet	1	Bottlenose Dolphin (WNA coastal)	233	15.16	151.6
Southeastern US Atlantic Shark Gillnet	2	Bottlenose Dolphin (WNA coastal)	24	15.16	151.6
Atlantic Squid, Mackerel, Butterfish Trawl	1	Common Dolphin (WNA)	122	22.7	227
		Long- and Short-Finned Pilot Whales (WNA)	76	10.8	108
Atlantic Ocean, Caribbean, Gulf of Mexico Large Pelagics Longline	1	Long- and Short-Finned Pilot Whales (WNA)	123	10.8	108
		Risso's Dolphin (WNA)	48	22	220
		Pygmy Sperm Whale (WNA)	6	0.37	3.7
Northeast Atlantic Herring Joint Venture Mid-Water Trawl	(2)*	Long- and Short-Finned Pilot Whales (WNA)	11	10.8	108
* While the domestic fishery is in Category 2, there is technically no category for a joint-venture fishery because a joint venture fishery is international. Sources: NMFS, 2003b & 2003c.					

550
551

551 **4.2.2.3 Pacific Region**

552

553 Under Alternative 2, six commercial fisheries in the Pacific region would not achieve the
 554 ZMRG. Of the six fisheries, three would not meet the ZMRG for one stock each, one
 555 would not meet the ZMRG for two stocks, and two would not meet the ZMRG for four
 556 stocks each (see Table 4-16).

557

558

559

560

561

Table 4-16
Commercial Fisheries in the Pacific Region with
Incidental Mortality and Serious Injury Exceeding T_{ins} under Alternative 2

Fishery	Category	Species (Stock)	Estimated Annual Mortality	T_{ins}	PBR
California Angel Shark and Halibut Set Gillnet	1	California Sea Lion (US)	1267	833.3	8333
		Harbor Porpoise (Monterey Bay)	3	1.1	11
		Harbor Porpoise (Morro Bay)	4.8	0.7	7
		Harbor Seal (California)	429	154.3	1543
California/Oregon Thresher Shark and Swordfish Drift Gillnet	2	Fin Whale (CA/OR/WA)	1	0.51	5.1
		Northern Right-Whale Dolphin (CA/OR/WA)	23	16.4	164
		Short-Finned Pilot Whale (CA/OR/WA)	1.2	0.119	1.19
		Sperm Whale (CA/OR/WA)	1	0.18	1.8
Washington Puget Sound Treaty and Non-Treaty Salmon Drift Gillnet	2	Harbor Porpoise (Washington Inland Waters)	15	2	20
CA/OR/WA Salmon Troll	3	Humpback Whale (ENP)	> 0.2	0.135	1.35
Unknown	N/A*	Humpback Whale (ENP)	> 0.6	0.135	1.35
Hawaiian Swordfish, Tuna, Billfish, Mahi Mahi, Wahoo, Oceanic Shark Longline/Set Line	3	Short-Finned Pilot Whale (Hawaii)	0-2.3**	1.3	13
		False Killer Whale (Hawaii)	4.6-6.9**	0.08	0.8

* N/A = not applicable. Because the fishery is unknown, it cannot be categorized.
 ** The estimated mortality for these species is a range with the high end including unidentified cetaceans in the area that were incidentally killed or seriously injured.
 Sources: NMFS, 2003b & 2003c.

562

563

4.2.3 Alternative 3

As the least conservative alternative, Alternative 3 would result in the fewest fisheries exceeding insignificant levels of incidental mortality and serious injury (see Table 4-13). Therefore, Alternative 3 would result in the fewest number of fisheries requiring reduction of incidental mortality and serious injury.

Because Alternative 3 would affect the fewest number of fisheries and may result in the least-stringent measures in TRPs, it would have the fewest potential, minor, direct and indirect, negative impacts on fishery socioeconomics. Also, because Alternative 3 is generally the least protective of marine mammal stocks, less effort would likely be required to achieve the long-term goal of TRPs under Alternative 3 than under the other alternatives. Impacts on fishermen are expected to be minor because they are represented on the TRT, and the TRT would take into consideration economic feasibility of the entire fishery when designing a TRP. The indirect socioeconomic impacts relate to opportunity costs. Opportunity costs to the TRT participants directly correlate with the length of the TRT process. Generally, the opportunity costs are lost fishing time and potential income while the TRT meets. Because NMFS does not pay the TRT participants, no financial compensation would offset these opportunity costs. The opportunity costs to all fishery participants would result from potential TRP measures, such as time and area closures, that would reduce their fishing effort. Under Alternative 3, opportunity costs would be small because fewer fisheries would be subject to TRTs than under any other alternative and because TRPs may include the least-stringent measures when compared to the other alternatives.

Direct costs to all members of the fishery would be based on potential TRP measures. In addition to time and area restrictions as mentioned above, such measures could include gear modification or replacement, which would likely result in direct costs to the fishermen as they would have to alter their gear or purchase new types of gear.

4.2.3.1 Alaska Region

Under Alternative 3, only the commercial fisheries in the Alaska region that interact with the WNP stock of humpback whales would fail to achieve the ZMRG. Although the WNP stock of humpback whales would have incidental mortality and serious injury (0.8) exceeding insignificant levels ($T_{ins} = 0.734$), no single fishery is responsible for enough incidental mortality and serious injury to prevent it from achieving the ZMRG according to the first criterion (see discussion of the two-tiered approach in section 2.2) under Alternative 3. However, as provided in Section 118(f)(2) of the MMPA, a TRT still has the long-term goal for commercial fishing operations to achieve ZMRG for a strategic stock. Implementing the second criterion of the two-tiered approach, ten percent of T_{ins} for this stock under Alternative 3 would be 0.0734. The BSAI groundfish trawl and an unknown fishery are the only fisheries that interact with this stock, and they both have estimated annual fishery mortalities (0.6 and 0.2, respectively) that exceed ten percent of T_{ins} . Therefore, a TRP would be necessary for both fisheries to reduce incidental mortality and serious injury of the WNP stock of humpback whales.

609 **4.2.3.2 Atlantic Region**

610

611 Under Alternative 3, five commercial fisheries in the Atlantic region would not achieve
 612 the ZMRG. Of the five fisheries, two would not meet the ZMRG for one stock each, two
 613 would not meet the ZMRG for two stocks each, and one would not meet the ZMRG for
 614 three stocks (see Table 4-17).

615

616

617

618

619

Table 4-17
Commercial Fisheries in the Atlantic Region with
Incidental Mortality and Serious Injury Exceeding T_{ins} under Alternative 3

Fishery	Category	Species (Stock)	Estimated Annual Mortality	T_{ins}	PBR
Northeast/Mid-Atlantic American Lobster Trap/Pot	1	North Atlantic Right Whale (WNA)	> 0	0	0
Northeast Sink Gillnet	1	Harbor Porpoise (after TRP) (Gulf of Maine/Bay of Fundy)	277	149.39	747
		Harbor Seal (WNA)	953	549.276	5493
Mid-Atlantic Coastal Gillnet	1	Bottlenose Dolphin (WNA coastal)	233	30.27	151.6
Atlantic Squid, Mackerel, Butterfish Trawl	1	Common Dolphin (WNA)	90	47.31	227
		Long- and Short-Finned Pilot Whales (WNA)	76	22.686	108
Atlantic Ocean, Caribbean, Gulf of Mexico Large Pelagics Longline	1	Long- and Short-Finned Pilot Whales (WNA)	123	22.686	108
		Risso's Dolphin (WNA)	48	45.832	220
		Pygmy Sperm Whale (WNA)	6	0.746	3.7

* N/A = not applicable. Because the fishery is unknown, it cannot be categorized.
 Sources: NMFS, 2003b & 2003c.

620

621

621 **4.2.3.3 Pacific Region**

622

623 Under Alternative 3, three commercial fisheries in the Pacific region would not achieve
 624 the ZMRG. Of the three fisheries, one would not meet the ZMRG for one stock, one
 625 would not meet the ZMRG for two stocks, and one would not meet the ZMRG for four
 626 stocks (see Table 4-18).

627

628

629

630

631

Table 4-18
Commercial Fisheries in the Pacific Region with
Incidental Mortality and Serious Injury Exceeding T_{ins} under Alternative 3

Fishery	Category	Species (Stock)	Estimated Annual Mortality	T _{ins}	PBR
California Angel Shark and Halibut Set Gillnet	1	California Sea Lion (US)	1267	833.3	8333
		Harbor Porpoise (Monterey Bay)	3	2.284	11
		Harbor Porpoise (Morro Bay)	4.8	1.338	7
		Harbor Seal (California)	429	154.32	1543
California/Oregon Thresher Shark and Swordfish Drift Gillnet	2	Short-Finned Pilot Whale (CA/OR/WA)	1.2	0.298	1.19
Washington Puget Sound Treaty and Non-Treaty Salmon Drift Gillnet	2	Harbor Porpoise (Washington Inland Waters)	15	5.09	20
		False Killer Whale (Hawaii)	4.6-6.9**	0.166	0.8

* N/A = not applicable. Because the fishery is unknown, it cannot be categorized.
 ** The estimated mortality for these species is a range with the high end including unidentified cetaceans in the area that were incidentally killed or seriously injured.
 Sources: NMFS, 2003b & 2003c.

632

633

634 **4.2.4 Alternative 4**

635

636 As the moderately conservative alternative, Alternative 4 would result in a moderate
 637 number of fisheries responsible for exceeding insignificant levels of incidental mortality
 638 and serious injury (see Table 4-13). Therefore, Alternative 4 would result in a moderate
 639 number of fisheries requiring reduction of incidental mortality and serious injury.

640

641 Because Alternative 4 would affect a moderate number of fisheries and may result in
 642 moderately-stringent measures in TRPs, it would have moderate amounts of potential,
 643 minor, direct and indirect, negative impacts on fishery socioeconomics when compared to
 644 the other alternatives. Impacts on fishermen are expected to be minor because they are
 645 represented on the TRT, and the TRT would take into consideration economic feasibility
 646 of the entire fishery when designing a TRP. The indirect socioeconomic impacts relate to
 647 opportunity costs. Opportunity costs to the TRT participants directly correlate with the

648 length of the TRT process. Generally, the opportunity costs are lost fishing time and
 649 potential income while the TRT meets. Because NMFS does not pay the TRT
 650 participants, no financial compensation would offset these opportunity costs. The
 651 opportunity costs to all fishery participants would result from potential TRP measures,
 652 such as time and area closures, that would reduce their fishing effort. Under Alternative
 653 4, opportunity costs would be moderate due to the number of fisheries that would be
 654 subject to TRTs when compared to other alternatives because TRPs may include
 655 moderately-stringent measures when compared to the other alternatives.

656

657 Direct costs to all members of the fishery would be based on potential TRP measures. In
 658 addition to time and area restrictions as mentioned above, such measures could include
 659 gear modification or replacement, which would likely result in direct costs to the
 660 fishermen as they would have to alter their gear or purchase new types of gear.

661

662 4.2.4.1 Alaska Region

663

664 Under Alternative 4, three commercial fisheries in the Alaska region would not achieve
 665 the ZMRG. Of the three fisheries, two would not meet the ZMRG for one stock each,
 666 and one would not meet the ZMRG for two stocks (see Table 4-19).

667

668

669

670

671

Table 4-19
Commercial Fisheries in the Alaska Region with
Incidental Mortality and Serious Injury Exceeding T_{ins} under Alternative 4

Fishery	Category	Species (Stock)	Estimated Annual Mortality	T_{ins}	PBR
Unknown	N/A*	Humpback Whale (CNP)	2.6	3.698	7.4
BSAI Groundfish Trawl	3	Humpback whale (WNP)	0.6	0.367	0.7
		Killer whale (ENP Transient)	0.4	0.346	2.8
BSAI Groundfish Longline	3	Killer whale (ENP Northern Resident)	0.8	0.723	7.2

* N/A = not applicable. Because the fishery is unknown, it cannot be categorized.
 Sources: NMFS, 2003b & 2003c.

672

673 4.2.4.2 Atlantic Region

674

675 Under Alternative 4, six commercial fisheries in the Atlantic region would not achieve
 676 the ZMRG. Of the six fisheries, three would not meet the ZMRG for one stock each, one
 677 would not meet the ZMRG for two stocks, one would not meet the ZMRG for three
 678 stocks, and one would not meet the ZMRG for five stocks (see Table 4-20).

679

680

680
681
682
683

Table 4-20
Commercial Fisheries in the Atlantic Region with
Incidental Mortality and Serious Injury Exceeding T_{ins} under Alternative 4

Fishery	Category	Species (Stock)	Estimated Annual Mortality	T _{ins}	PBR
Northeast/Mid-Atlantic American Lobster Trap/Pot	1	North Atlantic Right Whale (WNA)	> 0	0	0
Northeast Sink Gillnet	1	Atlantic White-Sided Dolphin (WNA)	59	37.904	364
		Bottlenose Dolphin (WNA offshore)	26	24.897	249
		Common Dolphin (WNA)	29	23.655	227
		Harbor Porpoise (after TRP) (Gulf of Maine/Bay of Fundy)	277	74.695	747
		Harbor Seal (WNA)	953	274.638	5493
Mid-Atlantic Coastal Gillnet	1	Bottlenose Dolphin (WNA coastal)	233	15.14	151.6
Southeastern US Atlantic Shark Gillnet	2	Bottlenose Dolphin (WNA coastal)	24	15.14	151.6
Atlantic Squid, Mackerel, and Butterfish Trawl	1	Common Dolphin (WNA)	122	23.655	227
		Long- and Short-Finned Pilot Whales (WNA)	76	11.343	108
Atlantic Ocean, Caribbean, Gulf of Mexico Large Pelagics Longline	1	Long- and Short-Finned Pilot Whales (WNA)	123	11.343	108
		Risso's Dolphin (WNA)	48	22.916	220
		Pygmy Sperm Whale (WNA)	6	0.373	3.7

* N/A = not applicable. Because the fishery is unknown, it cannot be categorized.
Sources: NMFS, 2003b & 2003c.

684
685
686
687
688
689
690
691
692

4.2.4.3 Pacific Region

Under Alternative 4, four commercial fisheries in the Pacific region would not achieve the ZMRG. Of the four fisheries, one would not meet the ZMRG for one stock, one would not meet the ZMRG for two stocks, one would not meet the ZMRG for three stocks, and one would not meet the ZMRG for four stocks (see Table 4-21).

692
693
694
695

Table 4-21
Commercial Fisheries in the Pacific Region with
Incidental Mortality and Serious Injury Exceeding T_{ins} under Alternative 4

Fishery	Category	Species/Stock	Estimated Annual Mortality	T_{ins}	PBR
California Angel Shark and Halibut Set Gillnet	1	California Sea Lion (US)	1267	416.643	8333
		Harbor Porpoise (Monterey Bay)	3	1.142	11
		Harbor Porpoise (Morro Bay)	4.8	0.669	7
		Harbor Seal (California)	429	77.16	1543
California/Oregon Thresher Shark and Swordfish Drift Gillnet	2	Northern Right-Whale Dolphin (CA/OR/WA)	23	16.417	164
		Short-Finned Pilot Whale (CA/OR/WA)	1.2	0.149	1.19
		Sperm Whale (CA/OR/WA)	1	0.885	1.8
Washington Puget Sound Treaty and Non-Treaty Salmon Drift Gillnet	2	Harbor Porpoise (Washington Inland Waters)	15	2.545	20
Hawaiian Swordfish, Tuna, Billfish, Mahi Mahi, Wahoo, Oceanic Shark Longline/Set Line	3	Short-Finned Pilot Whale (Hawaii)	0-2.3**	1.313	13
		False Killer Whale (Hawaii)	4.6-6.9**	0.083	0.8
<p>* N/A = not applicable. Because the fishery is unknown, it cannot be categorized. ** The estimated mortality for these species is a range with the high end including unidentified cetaceans in the area that were incidentally killed or seriously injured. Sources: NMFS, 2003b & 2003c.</p>					

696
697
698
699

4.3 Regulatory Impacts

700 This section discusses the regulatory impacts of implementing each alternative with
701 regard to applicable laws, namely the MMPA, ESA, Magnuson-Stevens Act, EO 12866,
702 and RFA. Only the MMPA and the Magnuson-Stevens Act are discussed individually
703 under each alternative.

704
705 None of the alternatives are likely to adversely affect ESA-listed species or their critical
706 habitat. Listed species are discussed above in section 4.1. Therefore, no formal Section
707 7 consultation is necessary under any of the alternatives (see Appendix B).

708
709 In conjunction with this EA, NMFS will publish an analysis in accordance with NMFS
710 procedures to determine compliance with EO 12866 and the RFA (see Appendix C).

711

711 **4.3.1 Alternative 1: No Action Alternative**

712 **4.3.1.1 MMPA**

713 The implementation of the No Action Alternative would be inconsistent with the MMPA.
714 Section 118 of the MMPA requires commercial fisheries to meet the ZMRG. Without a
715 defined ZMRG, it would be difficult for a fishery to meet that goal. According to the
716 April 2003 settlement agreement, NMFS agreed to define ZMRG in a final rule. The No
717 Action Alternative would prevent NMFS from abiding by the agreement. Therefore, the
718 No Action Alternative is not a feasible option.
719

720 **4.3.1.2 Magnuson-Stevens Act**

721 The No Action Alternative would have an indirect, minor, negative effect on the
722 Magnuson-Stevens Act concerning bycatch reduction. Because there would be no
723 regulatory definition of ZMRG under the No Action Alternative, TRTs would be less
724 likely to develop and require measures in TRPs to reduce marine mammal incidental
725 mortality and serious injury to an insignificant level approaching a zero rate. Since such
726 measures could have ancillary benefits for bycatch reduction of other species, the
727 resulting indirect, minor, negative effect would be that bycatch of species under the
728 jurisdiction of the Magnuson-Stevens Act may not be reduced as much as it would be
729 with a defined ZMRG.
730

731 The No Action Alternative would not affect EFH, and therefore, no formal consultation
732 with the NMFS Office of Habitat is required (see Appendix B).
733

734 **4.3.2 Alternative 2: Preferred Alternative**

735 **4.3.2.1 MMPA**

736 By defining the ZMRG to be achieved when incidental mortality and serious injury levels
737 are reduced to ten percent or less of PBR (see Table 2-1), Alternative 2 would be
738 consistent with the requirements of MMPA Section 118 related to ZMRG. Also,
739 Alternative 2 would be consistent with all other sections of the MMPA.
740

741 **4.3.2.2 Magnuson-Stevens Act**

742 Alternative 2 would have a minor, positive effect bycatch reduction of species under the
743 jurisdiction of the Magnuson-Stevens Act. Alternative 2 would require marine mammal
744 incidental mortality and serious injury to be reduced to an insignificant level approaching
745 a zero rate. Also, an indirect, minor, positive effect would be that bycatch of species
746 under the jurisdiction of the Magnuson-Stevens Act may be further reduced as a result of
747 defining ZMRG. It is likely that TRTs would propose gear modifications or other
748 restrictions that would reduce bycatch of other non-target species as a positive side effect
749 of techniques to reduce marine mammal incidental mortality and serious injury.
750

757 Compared to the other action alternatives, these minor, positive effects on bycatch
758 reduction would be greatest under Alternative 2 because it is the most protective
759 alternative (see Tables 4-2 and 4-13).

760

761 Defining ZMRG under Alternative 2 would have unknown impacts on EFH, and no
762 formal consultation with the NMFS Office of Habitat Conservation is necessary (see
763 Appendix B). However, it is possible that future TRP provisions would take into account
764 possible impacts on EFH. For example, if a take-reduction measure shifts fishing effort
765 to a new location that has otherwise been unaffected by fishing operations, such new
766 fishing effort should be analyzed to determine if EFH would be affected. Similarly,
767 future TRP provisions could benefit EFH by, for example, restricting certain types of
768 fishing gear in areas that have EFH. If appropriate, NEPA analysis and coordination with
769 the NMFS Office of Habitat Conservation would be conducted for new TRP provisions.

770

771

772 **4.3.3 Alternative 3**

773

774 **4.3.3.1 MMPA**

775

776 Alternative 3 would be consistent with the April 2003 settlement agreement in defining
777 ZMRG, but it would not be fully consistent with the MMPA. By defining the ZMRG to
778 be achieved when incidental mortality and serious injury levels are reduced to a point that
779 causes no more than a ten-percent recovery delay (see Table 2-1), Alternative 3 would be
780 consistent with the requirements of Section 118(b) but would not be consistent with the
781 requirements of Section 118(f)(2). Section 118(f)(2) describes the short- and long-term
782 goals of TRPs. For endangered species under Alternative 3, T_{ins} would be equal to PBR.
783 This is inconsistent with the two separate goals of TRPs. Therefore, Alternative 3 would
784 not be feasible.

785

786 **4.3.3.2 Magnuson-Stevens Act**

787

788 Like Alternative 2, Alternative 3 would have an indirect, minor, positive effect on
789 bycatch reduction of species under the jurisdiction of the Magnuson-Stevens Act.
790 Alternative 3 would require marine mammal incidental mortality and serious injury to be
791 reduced to an insignificant level approaching a zero rate. The indirect, minor, positive
792 effect would be that bycatch of species under the jurisdiction of the Magnuson-Stevens
793 Act may be further reduced as a result of defining ZMRG. It is likely that TRTs would
794 propose gear modifications and other restrictions that would reduce bycatch of other non-
795 target species as a positive side effect to the techniques to reduce marine mammal
796 incidental mortality and serious injury. Compared to the other action alternatives, these
797 minor, positive effects on bycatch reduction would be the smallest under Alternative 3
798 because it is the least protective alternative (see Tables 4-2 and 4-13).

799

800 Defining ZMRG under Alternative 3 would have unknown impacts on EFH, and no
801 formal consultation with the NMFS Office of Habitat Conservation is necessary (see
802 Appendix B). However, it is possible that future TRP provisions would take into account

803 possible impacts on EFH. For example, if a take-reduction measure shifts fishing effort
804 to a new location that has otherwise been unaffected by fishing operations, such new
805 fishing effort should be analyzed to determine if EFH would be affected. Similarly,
806 future TRP provisions could benefit EFH by, for example, restricting certain types of
807 fishing gear in areas that have EFH. If appropriate, NEPA analysis and coordination with
808 the NMFS Office of Habitat Conservation would be conducted for new TRP provisions.
809

810

811 **4.3.4 Alternative 4**

812

813 **4.3.4.1 MMPA**

814

815 By defining the ZMRG to be achieved when incidental mortality and serious injury levels
816 are reduced to a point that causes no more than a five-percent recovery delay (see Table
817 2-1), Alternative 4 would be consistent with requirements of Section 118 related to the
818 ZMRG. Also, Alternative 4 would be consistent with all other sections of the MMPA.
819

819

820 **4.3.4.2 Magnuson-Stevens Act**

821

822 Like Alternative 3, Alternative 4 would have an indirect, minor, positive effect on
823 bycatch reduction of species under the jurisdiction of the Magnuson-Stevens Act.
824 Alternative 4 would require marine mammal incidental mortality and serious injury to be
825 reduced to an insignificant level approaching a zero rate. The indirect, minor, positive
826 effect would be that bycatch of species under the jurisdiction of the Magnuson-Stevens
827 Act may be further reduced as a result of defining ZMRG. It is likely that TRTs would
828 propose gear modifications and other restrictions that would reduce bycatch of other non-
829 target species as a positive side effect to techniques to reduce marine mammal incidental
830 mortality and serious injury. Compared to the other action alternatives, these minor,
831 positive effects on bycatch reduction would be moderate under Alternative 4 (see Tables
832 4-2 and 4-13).
833

833

834 Defining ZMRG under Alternative 4 would have unknown impacts on EFH, and no
835 formal consultation with the NMFS Office of Habitat Conservation is necessary (see
836 Appendix B). However, it is possible that future TRP provisions would take into account
837 possible impacts on EFH. For example, if a take-reduction measure shifts fishing effort
838 to a new location that has otherwise been unaffected by fishing operations, such new
839 fishing effort should be analyzed to determine if EFH would be affected. Similarly,
840 future TRP provisions could benefit EFH by, for example, restricting certain types of
841 fishing gear in areas that have EFH. If appropriate, NEPA analysis and coordination with
842 the NMFS Office of Habitat Conservation would be conducted for new TRP provisions.
843

843

843 4.4 Cumulative Impacts

844

845 This section discusses the cumulative impacts of implementing an alternative. Such
846 impacts include effects on institutions and management concepts that are beyond the
847 realm of Section 118 of the MMPA. Because the No Action Alternative would not result
848 in any impacts beyond those mentioned in above sections, this section addresses
849 cumulative impacts only for the action alternatives.

850

851 Generally, the cumulative impacts would be the same for each of the action alternatives.
852 Because regulatory measures to achieve the ZMRG would not be developed until TRTs
853 convene, specific impacts on protected marine populations and on commercial fisheries
854 will be analyzed in the future in separate NEPA documents for the TRPs. The impacts of
855 defining the ZMRG under any action alternative would be consistent with other fishery
856 regulatory programs. All fishery regulatory programs concerning marine mammals are
857 dedicated to protecting and conserving marine mammals while considering
858 socioeconomic effects on the fishing industry. The action alternatives in this EA would
859 contribute positively to most of these programs by ultimately reducing the number and
860 intensity of marine mammal interactions with commercial fisheries.

861

862 The only minor, negative cumulative effects on regulatory procedures would apply to
863 Alternatives 3 and 4 regarding fishery categories. Under Alternatives 3 and 4, the fishery
864 classification procedure would have to be redesigned because the criteria to categorize
865 fisheries in the LOF would not be consistent with the ZMRG definitions. Such a process
866 would have minor, negative effects on NMFS as it would require time to design and
867 implement a new classification scheme, which is used in the annual LOF and SARs.
868 However, the preferred alternative, Alternative 2, would not require a new fishery
869 classification scheme as the ZMRG definition would correspond to the categorizing
870 criteria currently used to produce the LOF.

871

872 The socioeconomic effects on commercial fisheries are not quantifiable at this stage;
873 future NEPA documents for specific TRPs would address specific socioeconomic
874 impacts for those TRPs. However, under any of the action alternatives most commercial
875 fisheries (approximately 90 percent) would not have to further reduce incidental mortality
876 and serious injury of marine mammals. Also, when considered in combination with other
877 fishery regulations already in place, additive effects of the preferred alternative on
878 socioeconomics of the commercial fishing industry are expected to be minor. Such
879 minor, negative effects may include slight increases in costs to commercial fishermen to
880 abide by required TRP measures required to achieve ZMRG. Minor, positive effects may
881 include increased landings of the target species if future required measures reduce
882 bycatch enough to increase landings per trip for the intended catch.

883

884 The action alternatives may have minor, indirect effects on other industries associated
885 with commercial fishing. Such industries include gear manufacturing and the seafood
886 industry. Effects on gear manufacturers would be correlated to any gear modifications
887 proposed by TRPs. Gear modifications could result in substantial, short-term, positive
888 effects on gear manufacturers if a new type of gear is developed and required by new

889 TRPs. Minor, long-term, positive impacts may result if TRP requirements include any
890 language to replace or mend gear in regular time cycles. Fishermen who do not make
891 their own gear would rely on gear manufacturers and contribute financially to that
892 industry, thus boosting its economy.

893
894 The seafood industry includes seafood processors, restaurants, and markets. Ultimately,
895 the seafood consumer may be affected as well. If the costs to fishermen increase as a
896 result of TRP provisions (i.e., gear modification/replacement or seasonal/area closures)
897 required to attain the ZMRG, the cost of fish may increase throughout the seafood
898 industry. The degree of such economic ripple effects would depend on specific TRP
899 provisions.

900
901 Finally, implementation of a proposed action alternative may, in the long term, result in
902 fewer takes of marine mammals nationwide, which is a moderate, positive, long-term
903 impact. This may allow NMFS to focus more regulatory effort on methods to reduce
904 other human-caused mortality and serious injury, such as vessel strikes and marine
905 pollution.

906

907

908 4.5 Consideration of Significant Criteria

909

910 In this EA, the context and intensity of the factors identified in NOAA's NEPA
911 guidelines and regulations (see section 1.7) were considered as well as short- and long-
912 term effects of the proposed action. This section focuses on the preferred alternative,
913 Alternative 2, and addresses the criteria from the guidelines and regulations as follows:

914

915 1. No significant beneficial or adverse environmental effects are expected. While
916 beneficial environmental effects are expected under the preferred alternative in the form
917 of marine mammal conservation, it is not expected that such effects would significantly
918 alter the populations of affected marine mammals. Minor, adverse socioeconomic effects
919 on the commercial fishing industry may result in slightly increased costs to the fishermen.
920 However, such costs could be balanced by increased landings of the target species as
921 future TRP measures required to achieve ZMRG would likely reduce bycatch and thus
922 increase the fishermen's profits.

923

924 2. The preferred alternative is not expected to impact public health and safety. It is
925 expected that future TRP measures would not negatively affect health and safety of any
926 commercial fishermen. However, any potential effects on health and safety, based on
927 specific TRP measures, would be analyzed in future NEPA documents for those specific
928 TRPs.

929

930 3. The geographic area of the preferred alternative includes what could be considered
931 unique characteristics such as EFH and critical habitat because the EA concerns all US
932 commercial fisheries. However, the proposed action is directed at reducing incidental
933 mortality and serious injury of marine mammals and is not expected to result in any
934 impacts on the physical environment.

935

936 4. The effects of the preferred alternative on the human environment are not likely to be
937 highly controversial. While comments were received in response to the ANPR from
938 several different viewpoints, many comments agreed with the preferred alternative or are
939 not consistent with the intent of the MMPA as described in section 2.3. Additionally, the
940 preferred alternative is very similar to the No Action Alternative; controversy is unlikely
941 because the preferred alternative simply gives regulatory power to the status quo, which
942 is using ten percent of PBR as the T_{ins} when defining ZMRG. For these reasons, the
943 preferred alternative is not highly controversial to the extent that the preparation of an
944 EIS is necessary.

945

946 5. The effects of the preferred alternative are not highly uncertain, nor do they involve
947 unique or unknown risks. The effect of defining the ZMRG is that TRTs would have
948 quantifiable long-term goals for the TRPs. Although specific regulatory measures of
949 future TRPs are unknown, it is certain that the effects of such measures would benefit the
950 conservation of marine mammal as provided by the MMPA and cause minimal impacts
951 on the commercial fishing industry when taken into consideration with other commercial
952 fishing regulations. No unique or unknown risks would result from implementing such
953 measures.

954

955 6. Defining the ZMRG does not establish a precedent for future actions with significant
956 effects. The ZMRG is already a mandate as provided by the MMPA so defining the
957 ZMRG would not set any precedent for future actions. Any future regulatory measures
958 designed to achieve the ZMRG would require independent NEPA analysis. Similarly, no
959 decision in principle about a future consideration is involved because specific TRTs
960 would develop future measures required for a fishery or group of fisheries to achieve the
961 ZMRG. A resulting TRP would require its own NEPA analysis before implementing any
962 such measures. Therefore, defining ZMRG according to the preferred alternative would
963 not establish a precedent for future actions with significant effects or represent a decision
964 in principle about a future consideration.

965

966 7. There are no individually insignificant but cumulatively significant impacts of the
967 proposed action. As discussed, there are other commercial fishing regulations in place
968 and the additive effects of defining the ZMRG are minor. Socioeconomic effects would
969 be minimal because the ZMRG is already a requirement as provided by the MMPA. The
970 preferred alternative would create a regulatory definition of the ZMRG that would
971 quantify the long-term goal of TRPs. Regarding impacts on marine mammals, the
972 expected effects would be to decrease the amount of incidental mortality and serious
973 injury, but such effects are not expected to be significant.

974

975 8. The proposed action would not adversely affect entities listed in or eligible for listing
976 in the National Register of Historic Places, nor would it cause loss or destruction of
977 significant scientific, cultural, or historic resources.

978

979 9. The proposed action is not expected to have a significant adverse impact on
980 endangered or threatened species, and is not expected to affect designated critical habitat.

981 The preferred alternative is designed to have beneficial effects on endangered or
982 threatened marine mammals by reducing incidental mortality and serious injury. Also,
983 future TRP measures required to achieve ZMRG are not expected to adversely affect
984 critical habitats.

985

986 10. The proposed action would not be in violation of Federal, state, or local laws for
987 environmental protection.

988

989 11. The proposed action is not likely to result in the introduction or spread of a
990 nonindigenous species. The proposed action applies to the commercial fishing industry
991 and does not involve potential species transfer.

992

1 **5.0 REGULATORY IMPACT REVIEW**

2
3 **5.1 Introduction**

4
5 The purpose of the Regulatory Flexibility Act (RFA) is to reduce the impacts of
6 burdensome regulations and record keeping on small businesses. To achieve this goal,
7 the RFA requires government agencies to describe and analyze the effects of the
8 regulations and possible alternatives on small business entities. On the basis of this
9 information, the Regulatory Impact Review determines whether the proposed action
10 would have a “significant economic impact on a substantial number of small entities.”
11

12 The main elements of the RFA are discussed fully in several sections of this document
13 and the relevant sections are incorporated by reference. The following discussion
14 summarizes the consequences for small entities of the proposed action and non-preferred
15 management options to define an insignificance threshold, which is the target level of
16 mortality and serious injury of marine mammals incidental to commercial fishing
17 operations, under the ZMRG.
18

19
20 **5.2 Problem Statement**

21
22 The purpose of and need for defining an insignificance threshold to implement the
23 ZMRG is described in chapter 1 of this EA.
24

25
26 **5.3 Objectives**

27
28 The objectives of this proposed rule is described in Section 1.1 of this document.
29

30
31 **5.4 Alternatives**

32
33 The alternatives considered as an insignificance threshold are discussed in chapter 2 of
34 this document.
35

36
37 **5.5 Steps Taken to Minimize the Economic Impact**

38
39 This proposed rule contains only one action, which is to define through regulation an
40 insignificance threshold as the upper limit of annual incidental mortality and serious
41 injury of marine mammal stocks that can be considered insignificant levels approaching a
42 zero mortality and serious injury rate. An insignificance threshold is estimated as ten
43 percent of the PBR for a stock of marine mammals. With such a limited purpose, steps to

44 minimize economic impact are not feasible in the proposed rule; however, the MMPA
45 states that in reducing incidental mortality and serious injury to the long-term goal
46 through the development and implementation of take reduction plans, NMFS must take
47 into account the economics of affected fisheries. Therefore, steps to minimize the
48 adverse economic impact of reducing incidental mortality and serious injury would be
49 included in the development and implementation of take reduction plans to meet the
50 long-term goal of reducing incidental mortality and serious injury to insignificant levels
51 approaching a zero mortality and serious injury rate.
52

53

54 **5.6 Determination of Insignificant Economic Impact on a** 55 **Substantial Number of Small Entities**

56

57 As noted in chapter 4 of this document, the No Action Alternative would result in no
58 regulatory definition of an insignificance threshold, and all remaining alternatives would
59 define such a threshold. An important component of the ZMRG is that once a fishery has
60 achieved an insignificant level of mortality and serious injury, approaching a zero
61 mortality and serious injury rate, then that fishery does not have to reduce its incidental
62 mortality and serious injury further. Therefore, defining the insignificance threshold
63 establishes a regulatory limit to the need to reduce mortality and serious injury. Without
64 such a limit, there would be no threshold below which mortality and serious injury must
65 be reduced. Alternatives 2-4, therefore, would have an economic benefit to the fishing
66 industry compared to the No Action Alternative by establishing a limit to the need to
67 reduce incidental mortality and serious injury.
68

69

70 Chapter 4 indicates the number of and identifies fisheries in each region that would have
71 incidental mortality above the insignificance threshold of at least one stock of marine
72 mammals under the alternatives to define the insignificance threshold. The numbers of
73 such fisheries are 21, 12, and 16 for Alternatives 2-4, respectively (see Table 4-13). The
74 list of fisheries for 2003 identifies a total of 189 fisheries. Therefore, defining an
75 insignificance threshold would be beneficial to 168-177 fisheries (89%-94%), depending
76 upon which alternative was selected because it would be recognized in developing and
77 implementing take reduction plans that most fisheries had already achieved target levels
78 for reducing incidental mortality and serious injury.

79

80 Alternative 3 would result in the least number of fisheries being above the insignificance
81 thresholds of stocks of marine mammals; however, as noted in the proposed rule,
82 Alternative 3 is inconsistent with provisions of the MMPA that require a short-term
83 (PBR) and long-term (insignificant levels approaching a zero mortality and serious injury
84 rate) goal for TRPs. Therefore, Alternative 3 would be an unacceptable alternative.

85

86 Alternatives 2 and 4 produce equal values for insignificance thresholds of most marine
87 mammals (those of threatened, depleted, or unknown status and having a recovery factor
88 of 0.5 for calculation of PBR). Therefore, fisheries that take any of these stocks would be
affected in the same manner under Alternatives 3 and 4. Alternative 2 results in a higher

89 insignificance threshold for robust stocks (those stocks within OSP or are increasing even
90 when human-caused mortality and serious injury exceeds the calculated PBR and which
91 have a recovery factor of 1.0 for calculating PBR) than does Alternative 4. However,
92 Alternative 2 results in a lower insignificance threshold, therefore, a lower target for
93 reducing mortality and serious injury, for endangered stocks (recovery factor of 0.1 used
94 in the PBR calculation) than Alternative 4. The effect of the lower insignificance
95 threshold for endangered stocks resulting from Alternative 2 means that more fisheries
96 (21) would be above the insignificance threshold than would be the case with Alternative
97 4 (16).

98
99 If mortality and serious injury incidental to a fishery exceed the insignificance threshold
100 of any stock of marine mammals and the fishery is a Category I or II fishery that interacts
101 with a strategic stock, then that fishery is subject to regulation under the TRP process in
102 the MMPA to reduce incidental mortality and serious injury to insignificant levels
103 approaching a zero mortality and serious injury rate. In developing and implementing a
104 plan to reduce incidental mortality and serious injury to meet this goal, NMFS must
105 consider available technology, the economics of the affected fisheries and existing state
106 and regional fishery management plans. Further, the legislative history of the MMPA
107 indicates strongly that Congress did not intend for fisheries to be subjected to a
108 substantial economic burden to meet this goal of the MMPA. Thus, the economic impact
109 of reducing mortality and serious injury of marine mammals would be somewhat limited
110 by appropriate consideration of the economics of affected fisheries when NMFS develops
111 and implements take reduction plans. Furthermore, the MMPA recognizes that
112 appropriations may be insufficient to develop and implement all take reduction plans at
113 once and provided priorities for convening teams. Because resources for marine mammal
114 conservation are not expected to increase substantially in the future, the development of
115 new take reduction plans is expected to be slow, and the accompanying economic effects
116 would be further limited by sequential, rather than concurrent, development of new take
117 reduction plans.

118
119 Because the cost of implementing measures to reduce mortality and serious injury in
120 accordance with the ZMRG would be known only when take reduction plans have been
121 developed so that the specific regulatory actions are identified, this analysis is limited to
122 a qualitative evaluation of the economic effects of the alternatives. Each alternative has
123 the potential to effect small entities (businesses and local governments of coastal
124 communities). Most fishing vessels are owned and operated by small business, and most
125 coastal communities are small governments. Coastal communities would be affected by
126 the extent to which fishing businesses in the communities are affected.

127
128 This proposed rule would define an insignificance threshold as the upper limit of annual
129 incidental mortality and serious injury of marine mammal stocks by commercial fisheries
130 that can be considered insignificant levels approaching a zero mortality and serious injury
131 rate. This definition would not, by itself, place any additional restrictions on the public.
132 Under provisions of the MMPA, a take reduction team must be established and a take
133 reduction plan developed and implemented within certain time frames if a strategic stock
134 of marine mammals interacts with a Category I or II commercial fishery. The long-term

135 goal of a take reduction plan is to reduce mortality and serious injury of marine mammals
136 to insignificant levels approaching a zero mortality and serious injury rate, taking into
137 account the economics of affected fisheries, the availability of existing technology, and
138 existing state or regional fishery management plans. Any measures identified in a take
139 reduction plan to reduce incidental mortality and serious injury would require separate
140 rulemaking action before the action could be implemented. Any subsequent restrictions
141 placed on the public to protect marine mammals would be included in separate
142 regulations, and appropriate analyses under the Regulatory Flexibility Act would be
143 conducted during those rulemaking procedures. Hence, implementation of this proposed
144 rule would not have a significant economic impact on a substantial number of small
145 entities. As a result, no regulatory flexibility analysis for this proposed rule has been
146 prepared.

147

148

149 **5.7 Determination of Insignificant Regulatory Action**

150

151 Executive Order 12866 defines a “significant regulatory action” as one that is likely to
152 result in: a) an annual effect on the economy of \$100M or more or one which adversely
153 affects in a material way the economy, a sector of the economy, productivity, jobs, the
154 environment, public health or safety, or state, local, or tribal governments or
155 communities; b) a serious inconsistency or interference with an action taken or planned
156 by another agency; c) novel legal or policy issues arising out of legal mandates, the
157 President’s priorities, or the principles set forth in this Executive Order.

158

159 The most notable effect of this rule would be to clarify through regulation the limit to
160 which fisheries had to reduce mortality and serious injury. The proposed rule would
161 clarify that most fisheries had achieved target levels of mortality consistent with the
162 ZMRG and would not have to further reduce incidental mortality and serious injury.
163 Thus, the major impact would be to formalize the current practice through regulation;
164 therefore, the fishing industry and affected local communities would not be subjected to
165 significant additional impact. Existing regulatory actions to reduce mortality and serious
166 injury of marine mammals incidental to fishing operations have been determined to be
167 insignificant, and the combined effect of the present alternatives and existing regulations
168 would remain insignificant.

169

170 As noted above, the major impact of the alternatives other than the No Action alternative
171 is positive because each of these alternatives would establish, through regulation, a limit
172 to the extent to which fisheries would have to reduce incidental mortality and serious
173 injury of marine mammals. Alternative 3 is not consistent with the MMPA and is,
174 therefore, not an acceptable alternative. Under Alternatives 2 and 4 most fisheries (89%
175 and 94%, respectively) are already below the target level of mortality and serious injury
176 and would not have to reduce mortality and serious injury any further. For the fisheries
177 that have mortality and serious injury levels that exceed the insignificance threshold of
178 any stock, take reduction plan would eventually have to be developed, and these plans
179 would have to take into account the economic feasibility of measures to reduce mortality

180 and serious injury in the long-term goal of TRPs. The new take reduction plans would
181 have to be developed slowly over time because appropriations are insufficient to develop
182 and implement new plans at this time. Accordingly, the economic impact of the
183 alternatives to define an insignificance threshold would be less than \$100 million;
184 therefore, the rule would be not significant for purposes of Executive Order 12866.
185 Furthermore, the alternatives would not have a significant impact on a substantial number
186 of small entities, and a regulatory flexibility analysis in addition to this preliminary
187 analysis is not required.
188
189
190

1 **6.0 LIST OF PREPARERS**

2
3 This Environmental Assessment was prepared by:

4
5 **EARTH TECH**

6 675 N. Washington Street, Suite 300
7 Alexandria, Virginia 22314
8

9 Key personnel included:

10
11 **Harriet Nash, Project Manager, Marine Biologist:** 5 years of experience in fishery
12 biology, coastal management, and preparing environmental impact documentation.
13 Georgetown University, 1995, BS, Biology; Duke University, 2001, MEM, Coastal
14 Environmental Management.
15

16 **Christine M. Ross, Editor, Marine Biologist:** 19 years of experience in designing and
17 coordinating ecological investigations and biological monitoring programs, and preparing
18 environmental impact documentation. Stockton State College, 1985, BS, Marine
19 Science.
20

21
22 Key participants from NOAA included:

23
24 **Tanya Dobrzynski, Fisheries Biologist,** Office of Protected Resources, National Marine
25 Fisheries Service, Silver Spring, MD.
26

27 **Tom Eagle, Fisheries Biologist,** Office of Protected Resources, National Marine
28 Fisheries Service, Silver Spring, MD.
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43

7.0 REFERENCES

- Barlow, Jay, Steven L. Swartz, Thomas C. Eagle, and Paul R. Wade. 1995. *U.S. Marine Mammal Stock Assessments: Guidelines for Preparation, Background, and a Summary of the 1995 Assessments*. U.S. Department of Commerce, NOAA Technical Memorandum NMFS-OPR-6.
- Harrison, P. 1983. *Seabirds, an Identification Guide*. Houghton Mifflin. Boston, MA.
- National Marine Fisheries Service (NMFS). 1983. *Recovery Plan for the Hawaiian Monk Seal, Monachus schauinslandi*. Prepared by William G. Gilmartin for NMFS, Silver Spring, MD.
- NMFS. 1991a. *Recovery Plan for the Humpback Whale (Megaptera novaeangliae)*. Prepared by the Humpback Whale Recovery Team for NMFS, Silver Spring, MD.
- NMFS. 1991b. *Recovery Plan for the Northern Right Whale (Eubalaena glacialis)*. Prepared by the Right Whale Recovery Team for NMFS, Silver Spring, MD.
- NMFS. 1992. *Recovery Plan for the Steller Sea Lion (Eumetopias jubatus)*. Prepared by the Steller Sea Lion Recovery Team for NMFS, Silver Spring, MD.
- NMFS. 1993. *Final Conservation Plan for the northern fur seal (Callorhinus ursinus)*. Prepared by the National Marine Mammal Laboratory/Alaska Fisheries Science Center, Seattle, WA and the Office of Protected Resources/National Marine Fisheries Service, Silver Spring, MD.
- NMFS. June 1995a. *Environmental Assessment of Proposed Regulations to Govern Interactions between Marine Mammals and Commercial Fishing Operations, under Section 118 of the Marine Mammal Protection Act*.
- NMFS. June 16, 1995b. "Taking of Marine Mammals Incidental to Commercial Fishing Operations; Authorization for Commercial Fisheries; Proposed List of Fisheries." Proposed rule; request for comments. *Federal Register*: Vol. 60, No. 116.
- NMFS. August 30, 1995c. "Taking of Marine Mammals Incidental to Commercial Fishing Operations; Authorization for Commercial Fisheries; Proposed List of Fisheries." Final rule. *Federal Register*: Vol. 60, No. 168.
- NMFS. 1998a. *Recovery Plan for the Blue Whale (Balaenoptera musculus)*. Prepared by Reeves, R.R., P.J. Clapham, R.L. Brownell, Jr., and G.K. Silber for NMFS, Silver Spring, MD.
- NMFS. 1998b. *Recovery Plan for the Shortnose Sturgeon (Acipenser brevirostrum)*. Prepared by the Shortnose Sturgeon Recovery Team for NMFS, Silver Spring, MD.

- 47 NMFS. September 2002a. *U.S. Atlantic and Gulf of Mexico Marine Mammal Stock*
48 *Assessments – 2002*. NOAA Technical Memorandum NMFS-NE-169. Prepared by
49 Gordon T. Waring, Janeen M. Quintal, and Carol P. Fairfield. Northeast Fisheries
50 Science Center, Woods Hole, Massachusetts.
- 51
52 NMFS. December 2002b. *Alaska Marine Mammal Stock Assessments, 2002*. NOAA
53 Technical Memorandum NMFS-AFSC-133. Prepared by R.P. Angliss and K.L. Lodge.
54 Alaska Fisheries Science Center, Seattle, Washington.
- 55
56 NMFS. December 2002c. *U.S. Pacific Marine Mammal Stock Assessments: 2002*.
57 NOAA Technical Memorandum NMFS-SWFSC-346. Prepared by James V. Carretta,
58 Marcia M. Muto, Jay Barlow, Jason Baker, Karin A. Forney, and Mark Lowry.
59 Southwest Fisheries Science Center, La Jolla, California.
- 60
61 NMFS. July 9, 2003a. “Authorization for Commercial Fisheries under the Marine
62 Mammal Protection Act of 1972; Zero Mortality Rate Goal.” Advanced notice of
63 proposed rulemaking; request for comments. *Federal Register*: Vol. 68, No. 131, p.
64 40888.
- 65
66 NMFS. July 15, 2003b. “List of Fisheries for 2003.” Final rule. *Federal Register*: Vol.
67 68, No. 135, p. 41725.
- 68
69 NMFS. June 2003c. Draft 2003 Stock Assessment Reports. Website accessed January
70 2004.
71 [http://www.nmfs.noaa.gov/prot_res/PR2/Stock_Assessment_Program/sars_draft.html].
72
- 73 NMFS. Website accessed January 2004a. Sea Turtle Protection and Conservation.
74 [http://www.nmfs.noaa.gov/prot_res/PR3/Turtles/turtles.html].
75
- 76 NMFS. Website accessed February 2004b. Anadromous and Marine Fishes.
77 [http://www.nmfs.noaa.gov/prot_res/PR3/Fish/fishes.html].
78
- 79 NMFS. Website accessed February 2004c. Status of Marine Mammals Under the Law.
80 [[http://www.nmfs.noaa.gov/prot_res/PR2/Conservation_and_Recovery_Program/listedm](http://www.nmfs.noaa.gov/prot_res/PR2/Conservation_and_Recovery_Program/listedms.html)
81 [ms.html](http://www.nmfs.noaa.gov/prot_res/PR2/Conservation_and_Recovery_Program/listedms.html)].
82
- 83 NMFS. Website accessed March 2004d. Atlantic Large Whale Take Reduction Team.
84 [<http://www.nero.noaa.gov/whaletrp/>].
85
- 86 NMFS. Website accessed March 2004e. Take Reduction Teams.
87 [http://www.nmfs.noaa.gov/prot_res/PR2/Fisheries_Interactions/TRT.htm].
88
- 89 NMFS. March 2004f. Authorization for Commercial Fisheries under the Marine
90 Mammal Protection Act of 1972; Zero Mortality Rate Goal. Proposed Rule. Federal
91 Register: Vol. ??, No. ???, p. ?????.
- 92

- 93 NMFS and USFWS. 1991a. *Recovery Plan for U.S. Population of Atlantic Green*
94 *Turtle*. NMFS, Washington, DC.
95
- 96 NMFS and USFWS. 1991b. *Recovery Plan for U.S. Population of Loggerhead Turtle*.
97 NMFS, Washington, DC.
98
- 99 NMFS and USFWS. 1992a. *Recovery Plan for Leatherback Turtles in the U.S.*
100 *Caribbean, Atlantic, and Gulf of Mexico*. NMFS, Washington, DC.
101
- 102 NMFS and USFWS. 1992b. *Recovery Plan for the Kemp's Ridley Sea Turtle*
103 *(Lepidochelys kempii)*. NMFS, St. Petersburg, FL.
104
- 105 NMFS and USFWS. 1993. *Recovery Plan for the Hawksbill Turtles in the U.S.*
106 *Caribbean Sea, Atlantic Ocean, and Gulf of Mexico*. NMFS, St. Petersburg, FL.
107
- 108 NMFS and USFWS. 1998a. *Recovery Plan for U.S. Pacific Populations of the East*
109 *Green Turtle (Chelonia mydas)*. NMFS, Silver Spring, MD.
110
- 111 NMFS and USFWS. 1998b. *Recovery Plan for U.S. Pacific Populations of the Green*
112 *Turtle (Chelonia mydas)*. NMFS, Silver Spring, MD.
113
- 114 NMFS and USFWS. 1998c. *Recovery Plan for U.S. Pacific Populations of the*
115 *Hawksbill Turtle (Eretmochelys imbricata)*. NMFS, Silver Spring, MD.
116
- 117 NMFS and USFWS. 1998d. *Recovery Plan for U.S. Pacific Populations of the*
118 *Leatherback Turtle (Dermochelys coriacea)*. NMFS, Silver Spring, MD.
119
- 120 NMFS and USFWS. 1998e. *Recovery Plan for U.S. Pacific Populations of the*
121 *Loggerhead Turtle (Caretta caretta)*. NMFS, Silver Spring, MD.
122
- 123 NMFS and USFWS. 1998f. *Recovery Plan for U.S. Pacific Populations of the Olive*
124 *Ridley Turtle (Lepidochelys olivacea)*. NMFS, Silver Spring, MD.
125
- 126 National Oceanic and Atmospheric Administration (NOAA). June 3, 1999.
127 Environmental Review Procedures for Implementing the National Environmental Policy
128 Act. Effective May 20, 1999. Website accessed December 2003.
129 [<http://www.rdc.noaa.gov/~nao/216-6.html>].
130
- 131 USFWS. Website accessed February 2004. [<http://endangered.fws.gov/>].
132
- 133 USFWS and Gulf States Marine Fisheries Commission. 1995. Gulf Sturgeon Recovery
134 Plan. Atlanta, GA.
135
- 136 Wade, Paul R. and Robyn P. Angliss. 1997. *Report of the GAMMS Workshop*. U.S.
137 Department of Commerce, NOAA Technical Memorandum NMFS-OPR-12. Website
138 accessed December 2003. [<http://nmml.afsc.noaa.gov/library/gammsrep/gammsrep.htm>].